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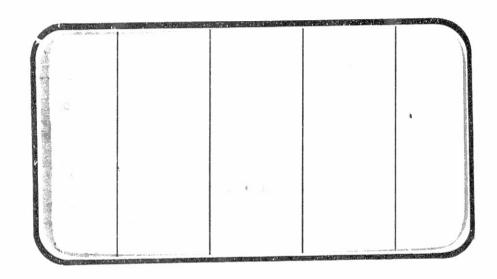
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141822



(NASA-CR-141822) HEAT TRANSFER TESTS OF A 0.006-SCALE THIN SKIN SPACE SHUTTLE MCDEL (50-0, 41-T) IN THE LANGLEY RESEARCH CENTER NITROGEN TUNNEL AT MACH 19 (IH19) (Chrysler Corp.) 731 p HC \$18.75 CSCL 22B G3/18 09378

N76-15253

Unclas

SPACE SHUTTLE

AEROTHERMODYNAMIC DATA REPORT



JOHNSON SPACE CENTER

HOUSTON, TEXAS

DATA MANagement services



DMS-DR-2157 NASA CR-141,822

HEAT TRANSFER TESTS OF AN°O 006-SCALE
THIN SKIN SPACE SHUTTLE MCDEL (50-0, 41-T)
IN THE LANGLEY RESEARCH CENTER NITROGEN TUNNEL
AT MACH 19 (1H19)

by

D. G. Walstad Rockwell International Space Division

Prepared under NASA Contract No. NAS9-13247

by

Data Management Services Chrysler Corporation Space Division New Orleans, La. 70189

for

Engineering Analysis Division

Johnson Space Center National Aeronautics and Space Administration Houston, Texas

WIND TUNNEL TEST SPECIFICS:

Test Number:

LaRC/N2 #28

NASA Series Number:

IH19

Model Number:

50-0, 41-T

Test Dates:

December 7, 1973 to January 8, 1974

Occupancy:

40 hours

FACILITY COORDINATOR:

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Chrysler Corporation Space Division assumes no responsibility for the data presented other than display characteristics.

HEAT TRANSFER TESTS OF AN 0.006-SCALE

THIN SKIN SPACE SHUTTLE MODEL (50-0, 41-T)

IN THE LANGLEY RESEARCH CENTER NITROGEN TUNNEL

AT MACH 19 (IH19)

By D. G. Walstad, Rockwell International Space Division

ABSTRACT

This report presents data obtained from heat transfer tests on an 0.006-scale Space Shuttle Vehicle in the Langley Research Center Nitrogen Tunnel. The purpose of this test was to obtain ascent heating data at a high hypersonic Mach number. Configurations tested were integrated Orbiter and external tank, Orbiter alone, and external tank alone. All configurations were tested with and without boundary layer transition.

Testing was conducted at a Mach number of 19, a Reynolds number of 0.5 million per foot, and angles of attack of 0, ± 5 , and ± 10 degrees. Heat transfer data was obtained from 77 Orbiter and 90 external tank iron-constantan thermocouples.

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PLOTTED COEFFICIENT SCHEDULE:

ω

- A) H/HREF versus X/L and HI/HU versus X/L $\,$
- B) H/HREF versus X/C and HI/HU versus X/C

NOMENCLATURE

Symbol	SADSAC Symbol	<u>Definition</u>
A		area of integration
b		model skin thickness, ft.
B.P.	B.P.	butt plane, in
С		specific heat of model material, BTU/lbm-°R
c_p		freestream specific heat at constant pressure, BTU/1bm-°R
g		gravitational acceleration, ft/sec ²
h	Н	heat transfer coefficient, BTU/ft ² -sec-°R
h _{ref}	HREF, HO	stagnation point heat transfer coefficient on scaled one-foot sphere, BTU/ft 2 -sec- $^\circ R$
Н		enthalpy, BTU/1b
${\sf H}_{\sf AW}$	HAW	adiabatic wall enthalpy, BTU/lb
H _i	HI	heat transfer coefficient in interference region, BTU/ft^2 -sec- $^{\circ}R$
H _u	HU	heat transfer coefficient in undisturbed region, BTU/ft^2 -sec- $^\circ R$
Ht	HT	stagnation enthalpy, BTU/lb
k		thermal conductivity coefficient, BTU/ft-sec°R
m		slope of straight line equation
М	MACH	Mach number
P_{0}	PO	stagnation pressure, psia
P		static pressure, psia
Pr		Prandtl number

NOMENCLATURE (Continued)

ģ	QDOT	heat flux, BTU/ft ² -sec
q _{ot}		stagnation-point heat transfer rate calculated using Fay and Riddell's equation, BTU/ft2-sec
rs		radius of scaled one-ft sphere, in
r		adiabatic wall temperature ratio, T_{aw}/T_{o} (recovery factor
R		gas constant, ft-lb/slug-°R
Re	·	Reynolds number
RN/L	RN/L	unit Reynolds number, per foot
ST		Stanton number
t		time, sec
T	Т	temperature, °R
T/C		thermocouple
u		velocity, ft/sec
W		density of model material, 1bm/ft ³
W.L.	W.L.	waterline, in
2y/b	2Y/B	nondimensional spanwise location, fraction of span
x		longitudinal distance coordinate, ft
X/C	X/C	nondimensional chordwise location, fraction of local chord
X/L	X/L	nondimensional longitudinal location, fraction of body length
α	ALPHA	angle between model centerline and wind vector, degrees
β	ВЕТА	angle of sideslip, degrees
Θ		calcuic imperfection effect on static to total temperature ratio

NOMENCLATURE (Concluded)

μ		viscosity of air, lb-sec/ft
ф	PHI	angular coordinate on model surface, degrees
ρ		density of model material, slug/ft
т		model skin thickness, in
	BLTRIP	boundary layer trips
Δh	DELTAH	minimum separation distance between Orbiter and external tank, in.
To	TO	stagnation temperature, °R

Subscripts

	Plot	
Symbol	Symbol	<u>Definition</u>
aw		adiabatic wall
i		initial conditions
m		measured
0		freestream total condition
PG		perfect gas
0,1,2		constants in specific heat (temperature) equation
s ·	•	reference sphere
t	,	stagnation conditions
TPG		thermally perfect gas
Å	4	model wall conditions
•		primed quantities which indicate conditions behind normal shock
₩.		tunnel free-stream conditions

CONFIGURATIONS INVESTIGATED

The model (Orbiter and external tank) tested was an 0.006-scale representation of the Rockwell International Space Shuttle Vehicle. The Orbiter and external tank are defined by Grumman Drawings SS-H-00701 and SS-H-00335.

The Orbiter was a Grumman built, full span configuration, stainless steel model. A thin-skin stainless steel (17-4PH) insert was located on the underside centerline region, left-hand wing underside, windshield area, and left fuselage side. These inserts were instrumented with 77 iron-constantan thermocouples. There were no provisions for elevon, rudder, or bodyflap deflections.

The external tank (ET) was constructed of thin-skin (nominal skin thickness of 0.040-inch) 15-5 PH stainless steel. This tank was instrumented with 111 iron-constantan thermocouples (only 90 were used). The ET had provisions for being tested alone, or integrated with the Orbiter.

All thermocouples were spot welded to the skin and clamped in bundles within the models.

The following configurations were tested:

<u>Notation</u>	Description
B ₂₂	Fuselage (-147B Lines)
c ₇	Canopy
F ₅	Bodyflap

CONFIGURATIONS INVESTIGATED (Concluded)

Notation	<u>Description</u>
M ₄	OMS Pods
V ₇	Vertical Tail
MJJJ	Wing
Т8	External Tank

MODEL INSTRUMENTATION

The Orbiter and external tank were instrumented with a total of 167 iron-constantan thermocouples. All thermocouples were spot welded to thin skin (nominally 0.030-inch) stainless steel inserts. The thermocouple leads were 50 feet long and all leads were fitted with plugs.

Prior to testing, all thermocouples were checked with a heat source to assure proper hook-up, polarity, and response. The exact locations of each thermocouple are presented in Tables IV and V and are illustrated in Figure 2.

TEST FACILITY DESCRIPTION

The NASA/Langley Research Center 18-inch Hypersonic Nitrogen Tunnel is a blow down facility with a normal operational time of up to two hours for force and moment testing. This long run time is possible because the nitrogen is obtained in liquid form, mechanically pumped to 17,000 psig P_T . and then vaporized and heated to 2900°F T_T prior to entry into the nozzle. The test section is of the open jet variety with a water cooled diffusor that exits into a 60-foot diameter vacuum sphere.

Models are sting mounted on an injectable blade strut with externally controllable pitch capability and manually setable yaw freedom. Force testing is done utilizing 5 component water cooled internal strain gauge balances, with injection time kept to a absolute minimum (less than 5 seconds) to alleviate balance drift problems due to aerodynamic heating. Air is also blown on the model to cool it while in the retracted position between injections.

Recent calibrations of the tunnel indicate that the most satisfactory conditions to obtain force data are:

Total pressure = 5000 psi
Total temp = 3360 °R
RN/foot = 0.68 x 10⁶
Macn = 19.80

The most recent operational parameters of the contoured nozzle are best obtained from the LaRC Hypersonic Analysis Section (Phone (804) 827-2483).

TEST FACILITY DESCRIPTION (Concluded)

The tunnel is also equipped with an electron beam flow vizualization device which allows color photographs with depth of field to be made of the flow system, allowing interpretation of shock interactions and flow separation phenomena.

TEST PROCEDURES

Heat transfer data was obtained by measuring the temperature rise over a period of time from a total of 167 iron-constantan thermocouples. The model was injected into the flow stream and held on tunnel centerline for approximately 3 seconds, during which time temperature measurements were taken.

A maximum of 90 thermocouples could be recorded at any one time. Temperature measurements were collected through the Beckman Data Acquisition system. The thermocouple leads were routed through the model support system and connected to a terminal board. Leads that were exposed to free-stream flow conditions were wrapped with asbestos tape.

Thermocouple leads were connected directly to a terminal board in the test section. Thermocouple changes were a manual operation requiring the handling of each individual lead. After each thermocouple change, a response and location check was performed to assure a proper hook up.

Prior to testing, a thermocouple heat response check, through the data system, was performed on all thermocouples. The model was leveled in pitch and roll by means of a leveling block which attached to the top of the Orbiter. When leveling the external tank the inclinometer was applied directly to the external surface. Proper roll relationships between the Orbiter and external tank, was assured by scribe lines located on the stings of each component and on the attaching brackets.

DATA REDUCTION

The thermocouple heat-transfer data was reduced by the one dimensional thin wall equation

$$\dot{q} = Wcb \frac{dT_w}{dt}$$
, BTu/ft²-sec (1)

The theoretical stagnation-point heat-transfer rate calculated using Fay and Riddell's equation:

$$\dot{q}_{ot} = 0.94 \left(\rho_W \mu_W\right)^{0.5} \left(\rho_o \mu_o / \rho_W \mu_W\right)^{0.4} \left(H_o - H_W\right) \left(du/dx\right)^{0.5} (2)$$

where

$$\mu = \frac{0.0232 \times 10^{-6} T^{0.5}}{1 + (220/T)}$$

and

$$\frac{du}{dx} = (1/r_s) [2RT(1 - P_{\infty}/P_0')]^{0.5}$$

The local heat-transfer coefficient for each thermocouple was computed

by:
$$h_{1 \text{ ocal}} = \frac{\dot{q}}{rT_0 - T_W}$$
 (3)

at r = 1.0, 0.9, 0.85

The ratio of the local heat-transfer coefficient to reference heattransfer coefficient for each thermocouple was computed using:

$$h_{ref} = \frac{q_{ot}}{T_o - T_w} \tag{4}$$

ST : IH-19			DATE: 1-8-74
	TEST CON	DITIONS	
MACH NUMBER	REYNOLDS NUMBER (per unit length)	DYNAMIC PRESSURE (pounds/sq. inch)	STAGNATION TEMPERATUR (degrees Fahrenheit)
19	0.5 x 10 ⁶		
\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\			,
			244,44
BALANCE UTILIZED:	N/A		
	CAPACITY:	ACCURACY:	COEFFICIENT TOLERANCE:
NF			
SF AF			
Рм RM			
YM			
COMMENTS: 77 in	ron-constantan T/C'	s on Orbiter	
90 ii	ron-constantan T/C'	s on external tank	

TABLE II.

DATA SET	CONFIGURATION	SC	CHD.	PAR	AMET	ERS/V	ALUE	NO. OF	M	ACH N	UMBER	= 19		****		· · · · · · · · · · · · · · · · · · ·	-	
		- α	β	R	Ah	Bi	T/C	RUNS	RUN									1
ROEGOI	ORF +ET	<u>JA</u>	0	.5	.:75	ON	ET		1068						MATERIAL TRANSPORT			
<u>32</u>		B	Ц			OFF	ET		1069									
3						OFF	OPE		1070									
4					4	SM			107.	1				-				\top
5	ORB				-	ON			1072							_		+-
6						OFF			1073			-			<u> </u>		 	+-
7	ET					OFF	FT		1015		1-					_		
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7	13 19		2	5		3 1	S	37		43	4	9	55		61	4 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	67	
IHKE FIR	D&T.	11	t	3.1 (1 :		1	!						علىد			

TABLE III. - MODEL DIMENSIONAL DATA

MODEL COMPONENT : BODY - BEE		· · · · · · · · · · · · · · · · · · ·
GENERAL DESCRIPTION : Tuselage, Co	ufiguration 34 ner	Rockwell
Lines VI70-000147R		The state of the s
NOTE: Identical to B19, except under		
MODEL SCALE: 0.006		
DRAWING NUMBER VE70-000147B		
DIMENSIONS:	FULL SCALE	MODEL SCALE
Length - In.	1290.3	7.742
Max Width - In.	267.6	1.606
Max Depth - In.	244.5	1.467
Fineness Ratio	4.84601	4.84601
Area - Ft ²		
Max. Cross-Sectional	386.67	0.0139
Planform		
Wetted		
Base	•	

TABLE III. - MODEL DIMENSIONAL DATA - Continued.

MODEL COMPONENT : CANOPY - C7		•
GENERAL DESCRIPTION: _Configuration_3_p	er Rockwell Jin	es VI/70-000139
		41
MODEL SCALE: 0.006		ر المراقعة ا
DRAWING NUMBER VI70-000139		
DIMENSIONS :	FULL SCALE	MODEL SCALE
Length ($X_0 = 433$ to $X_0 = 670$) - In.	F.S. 237.0	1.422
Max Width		
Max Dep:::		
Fineness Ratio		
Area	and the second of the production of the second of the seco	-
Max. Cross-Sectional		. Reference Control of Transport Control of
Planform		Approximate the second
Wetted	tyrytainingas yakotumidiliseiti tielitti tarittiinin kaistiinin tarittiinin tarittiinin tarittiinin tarittiini	
Base		

TABLE III. - MODEL DIMENSIONAL DATA - Continued.

MODEL COMPONENT : RODY FTAP - F	2	
GENERAL DESCRIPTION :3 Configur	ation per Rockwell	Lines VI70-000139
MODEL SCALE: 0.006		
DRAWING NUMBER VI70-000139		
	r	
DIMENSIONS :	FULL SCALE	MODEL SCALE
Length - In.	814-70	_0.508
Max Width - In.	267.6	_1.606
Max Depth		And the property of the State o
Fineness Ratio		Annal of the last
Area - Ft ²		THE PARTY COMPANY THE SECRETARY SECRETARY SECRETARY SECRETARY
Max. Cross-Sectional	Carridona. " De et reputation de particular	
Planform	142.5	0.005
Wetted	Agenting benefit to propose a laboratory strong management benefits.	Committee Spring
Base	38.0958	0.01.37

TABLE III (Cont'd)

MODEL COMPONENT : OMS POD - M		
GENERAL DESCRIPTION :Configurati	on 3 per Rockwell	<u> Lines VL70-0001</u> 3
NOTE: My identical to My, except in	tersection to fuse	lage.
Control of the Control of Walk Control of the Contr		
MODEL SCALE: 0.006		
DRAWING NUMBER: VL70-000139		
DIMENSIONS:	FULL SCALE	MODEL SCALE
Length, In.	346.0	2.076
Max Width, In.	108.0	_1,890
Max Depth , In.	113.0	0.678
Fineness Ratio	all and the second	
Area	a (All Principally) polymone medical di di transmissione con estimate	
Max. Cross-Sectional	MA-SAMMAN Province and Assessment and Assessment	Voicement detained in a particular detailment on a companying
Planform	a Salamana and and an analysis	
Wetted		f. paintenant frances-arrangement (experimental)
Base		

TABLE III (Cont'd)

MODEL COMPONENT : EXTERNAL TANK - Te									
GENERAL DESCRIPTION: 2A configuration per Rockwell lines:									
VI78-000018 and VI72-000061C body of revolution.									
		7							
MODEL SCALE: 0.006									
DRAWING NUMBER: VI78-000018									
•									
DIMENSIONS:	FULL SCALE	MODEL SCALE							
Length , In.	.1989.0	11.93							
Max Width. In.	324.0	1.944							
Max Depth									
Fineness Ratio	6.1389	6.1389							
Area - Ft ²									
Max. Cross—Sectional	572.56	0.0206							
Planform									
Wetted	-	a description of the second of							
Base	Manager, some over the state of the first part of the state of the sta								

MODEL COMPONENT: VERTICAL - V7		
GENERAL DESCRIPTION: Centerline vertical tail	, doublewedge	eirfail with
rounded leading edge.	<u> </u>	
NOTE: Same as V5, but with manipulator housing	removed.	
MODEL SCALE: 0.006		
DRAWING NUMBER: VI.70-000139		
DIMENSIONS:	FULL SCALE	MODEL SCALE
TOTAL DATA		
Area (Theo) - Ft ² Planform Span (Theo) - In. Aspect Ratio Rate of Taper Taper Ratio Sweep-Back Angles, Degrees. Leading Edge Trailing Edge 0.25 Element Line Chords: Root (Theo) WP	425.92 315.72 1.675 0.507 0.404 45.000 26.249 41.130	0.015 1.894 1.675 0.507 0.404 45.000 26.249 41.130
Tip (Theo) WP MAC Fus. Sta. of .25 MAC W.P. of .25 MAC B.L. of .25 MAC	108.47 199.81 1463.50 635.522 0.0	0.651 1.199 8.781 3.813 0.0
Airfoil Section Leading Wedge Angle - Deg. Trailing Wedge Angle - Deg. Leading Edge Radius, In.	10.0 14.920 2.00	10.0 14.920 0.012
Void Area	13.17	0.0013
Blanketed Area	0.0	0.0

REPRODUCIBILITY OF THE ORIGINAL PAGE IS POOR

TABLE III MODEL DIMENSIONAL MODEL COMPONENT: WING-WINZ	. DATA - Conclude	d .								
the statement of the st	Carrent de									
GENERAL DESCRIPTION: Configuration 3A per Rockwell	Lines VI.70-0001	L78.								
NOTE: Identical to Wiggs except lovered 3.5" and increased cuff incidence										
MODEL SCALE: 0.006										
TEST NO.	DWG. NO. VL70	-000147B								
DIMENSIONS:	FULL-SCALE	MODEL SCALE								
TOTAL DATA										
Area (Theo.) Ft ² Planform										
Span (Theo In.	_2690.00 936.68	0.0968								
Aspect Ratio	2.265	5.620 2.265								
Rate of Taper Taper Ratio	1.177	1.177								
Dihedral Angle, degrees	0.200 3.500	0.200								
Incidence Angle, degrees	0.500	3.500 0.500								
Aerodynamic Twist, degrees Sweep Back Angles, degrees	+ 3-000	+ 3.000								
Leading Edge	hr ose	•								
Trailing Edge	<u>45.000</u> - 10.24	<u>45.000</u> - 10.24								
0.25 Element Line	35.209	35.209								
Chords: Root (Theo) B.P.O.O.										
Tip, (Theo) B.P.	<u>689.24</u> 137.85	4.135								
MAC	474.81	0.827 2.849								
Fus. Sta. of .25 MAC	1136.89	6.821								
W.P. of .25 MAC B.L. of .25 MAC	295.70	1.774								
EVENCED DATA	182.13	1.093								
Area (Theo) Ft	1752.29	0.063								
Span, (ineo) in BP108	720.68	<u>0.063</u> <u>4.324</u>								
Aspect Ratio Taper Ratio	2.058	2.058								
Chords	0.2451	0.2451								
Root BP108	562.40	a amb								
Tip 1.00 <u>b</u>	137.85	3,374 0,827								
MAC Fus. Sta. of .25 MAC	393.03	2.358								
W.P. of .25 MAC	1185.31 296.70	7-112								
B.L. of .25 MAC	251.76	1.780 1.511								
Airfoil Section (Rockwell Mod NASA) XXXX-64										
Root $\underline{b} =$	0.10	0.10								
Tip b=	0.12	0.12								
Data for (1) of (2) Sides		V 1 245								
Leading Edge Cuff Planform Area Ft ²										
Flantorm Area Ft	118.333	0.5043								
Leading Edge Intersects Fus M. L. @ Sta Leading Edge Intersects Wing @ Sta	_500_0	_3.000								
and 12 manuscom unit & 2fd	1083.5	6.501								

Table IV Orbiter Thermocouple Locations

T/	C SKIN	LOCA	TION	
NC	THICKNESS	DIST. FROM X _o = 238.0	X/L	MODEL PART
18 14 56 78 90 12 34 56 78 90 12 34 56 78 90 12 32 22 22 22 23 33 33 33 33 34 41	0.035 0.035 0.034 0.033 0.033 0.034	0.194 0.387 0.581 0.774 0.968 1.355 1.3548 1.355 1.3548 1.355 1.3548 1.358 1.323 2.797 3.484 1.645 1.968 1.968 1.964 1.9	0.025 0.050 0.075 0.100 0.125 0.150 0.250 0.250 0.250 0.350 0.450 0.500 0.650 0.760 0.750 0.850 0.900 1.000 0.500	UNDERSIDE FUSELAGE Ø UNDERSIDE FUS. BP117 UNDERSIDE FUS. BP117 BODY SIDEWALL

Table IV (Cont'd)

T/C NO.	SKIN THICKNESS	LOCAT	MODEL	
110.	INTORMESS	DIST. FR X = 238.0	x/L	PART
42 43 45 47 49 50 51 52 53 54	0.035 0.035 0.033 0.035 0.034 0.032 0.035 0.035 0.035 0.035 0.035	3.871 4.645 4.645 4.645 5.419 5.419 6.387 0.774 1.161 1.548 1.316 3.290	0.500 0.600 0.600 0.600 0.700 0.700 0.700 0.825 0.100 0.150 0.200 1.170 0.425	BODY SIDEWALL BODY SIDEWALL OMS POD CHINE CHINE CHINE CANOPY MID-BODY

Table IV (Concluded)

MODEL		TION					
PART	ъ/2	% CHORD	DIST. FR.	SKIN THICKNESS	T/C NO.		
WING	40%	0.050	0.149	0.031	55		
BP = 187.33	40%	0.100	0.298	0.030	56		
4	40%	0.200	0.598	0.030	57		
•	40%	0.300	0.896	0.029	57 58		
	40%	0.400	1.195	0.028	59		
	40%	0.500	1.494	0.028	60		
	40%	0.600	1.793	0.028	61		
*	40%	0.700	2.092	0.028	62		
	40%	0.800	2.390	0.029	63		
BP = 187.33	40%	0.900	2.689	0.029	64		
BP = 281.00	60%	0.100	0.215	0.034	65		
4	1	0.200	0.430	0.032	66		
•	1	0.300	0.644	0.031	67		
		0.400	0.859	0.030	67 68		
		0.500	1.074	0.030	69		
	1 1	0.600	1.289	0.030	70		
		0.700	1.504	0.030	71		
V		0.800	1.718	0.029	72		
BP = 281.00	60%	0.900	1.933	0.029	72 73		
BP = 314.67	80%	0.200	0.298	0.034	74		
A		0.400	0.595	0.034	75		
T.		0.600	0.893	0.034	76		
BP = 314.6	80%	0.800	1.190	0.035	77		

Table V External Tank Thermocouple Locations

T/C	SKIN		TION	T/C	SKIN	LOCAT		T/C	SKIN		TION	
NO.	THICK.	X/1	DEG.	NO.	THICK	. X/1	DEG.	NO.	THICK.	X/1	DEG.	
12345678901234** 1111111111222234567890123 33333333333333333333333333333333333	0.030 0.030 0.039 0.029 0.028 0.028 0.028 0.028 0.032 0.039 0.031 0.031	0.005 0.010 0.020 0.020 0.046 0.15 0.15 0.15 0.20 0.25 0.275 0.275 0.330 0.335 0.35 0.35 0.35 0.35 0.35 0	NOSE 180 180 180 90 180 90 180 90 180 190 180 135 112.5 90 180 135 112.5 90 180 135 180 157.5	3456789012344444445555555555566666666666666666666	0.032 0.033 0.033 0.039 0.031 0.031 0.033 0.033 0.033 0.033 0.033 0.033 0.033 0.033 0.033 0.033 0.033 0.033 0.033 0.033 0.033 0.033 0.033 0.033 0.033	0.40 0.440 0.440 0.455 0.455 0.455 0.455 0.555 0.555 0.555 0.555	180 157.5 135 112.5 90 180 157.5 180 157.5 180 157.5 180 157.5 180 157.5 112.5 90 180 157.5 180 157.5	67017777778838888899123456788888889912345678	0.030 0.033	0.66.65.65.65.65.70.70.70.70.70.70.70.70.70.70.70.70.70.	45 0 180 157 15 5 180 180 75 15 112 967 180 180 157 155 5 180 180 157 155 5 180 157 155 5 180 157 155 5 180 180 180 180 180 180 180 180 180 180	

^{*} Thermocouples not used for this test (IH19)

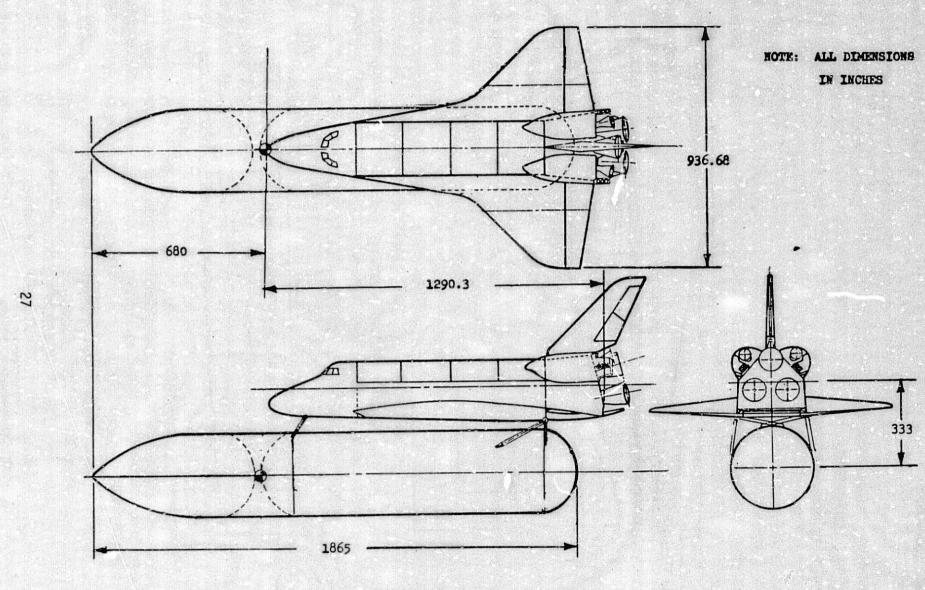
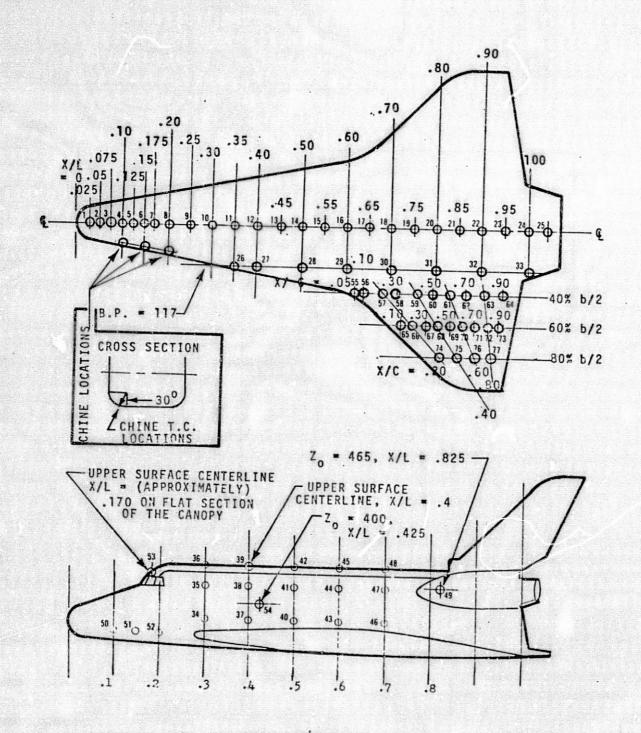


Figure 1. - Integrated Vehicle General Arrangement.



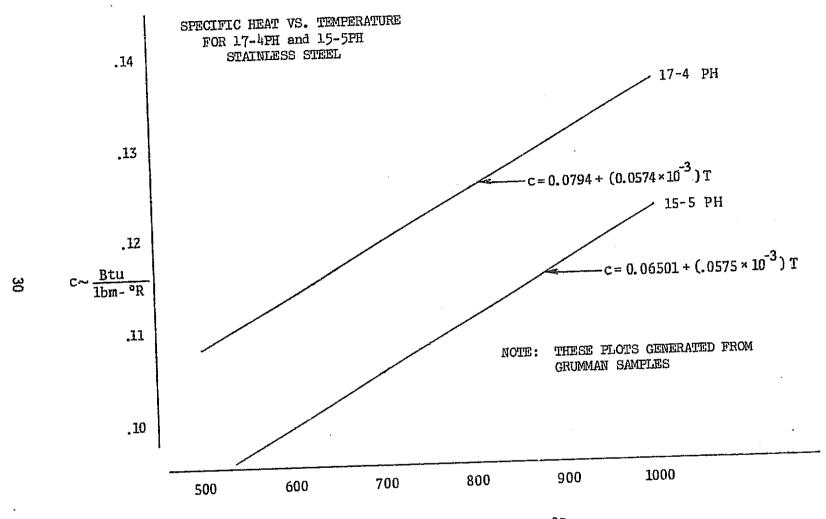
a. 50-0 Orbiter Thermocouple Locations
 Figure 2. - Model instrumentation.

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T/C		<u> </u>		T/C	T	 	1	T/C		T		T/C	T		7			
ъэ,	DIH. X	φ		10.	DIH. X	φ	`	NG.	DIX. X	φ		NO.	Дін. х	Ф		T/C	рри. х	φ
123456789 1011213145 1451678 1100122	0 .055 .111 .221 .4.62 .664 .375 .1105 .1.302 .1.659 .2.212 .2.765 .2.765 .3.641 .3.319 .4 .4 .3.319 .4 .4 .3.319 .4 .4 .3.319 .5 .4 .4 .3.576	180° 180° 180° 180° 180° 112°30° 50° 112°30° 50° 67°30° 135° 67°30° 135° 135°		26 27 28 29 31 32 33 35 37 38 39 41 42 45 47 48	3.871 4.147 4.147 4.147 4.424 4.424 4.4700 4.977 5.253 5.530	135* 112*30' 50* 67*30' 180* 135* 170* 135* 112*30' 90* 175* 180* 180* 180* 180* 180* 180* 180* 180		512 533 545 556 575 59 60 645 666 670 772 773	5.530 5.530 5.530 5.806 6.082 6.359 6.635 6.635 7.188	\$0° 67°30° 15° 180° 157°30° 135° 112°30° 90° 180° 180° 157°30° 135° 112°30° 90° 170° 170° 170° 170° 170° 170° 170° 17		76 77 78 79 80 81 62 83 84 85 86 87 88 99 90 91 92 93 94 97 98	7.465 7.741 3.274 8.294 8.847	190° 180° 157°30° 135° 112°30° 90° 67°30° 157°30° 112°30° 25° 112°30° 25° 112°30° 25° 112°30° 45° 67°30° 180°		101 102 103 164 105 106 107 108 109 110	9. LOO 9. LOO 9. 953 9. 953 10. 336	112*30° 90° 157*30° 123*30° 90° 67*30° 45°
2). 25	3.594 3.871	160. 80.		50	5.550	115.30. 722.		74 75	7.16R	67°30'		100	9.400 9.400	157-30 135				
															1:	7 1 •06-52	107 800	
2230		9 10 11		16 19 16 19 0 0 0 5 17 20	22 25 31 0 0 0 0 23 27 0 0 0 24 28 0	12 40 43 4 133	50 5	756	75 75	77 24. 872 V8. 079 08 80 07 0 V 81 88 0 0 82 69	90 6 092 93 94 95 95 95		105)	135° 112°30° 90° L.H. 67°50°		R.E. 2	70-
7 209		1.105 DIK.	(REF) X 	5 .3			•5	.6	-	-7	-3	ا .			•		o- o roslado	•

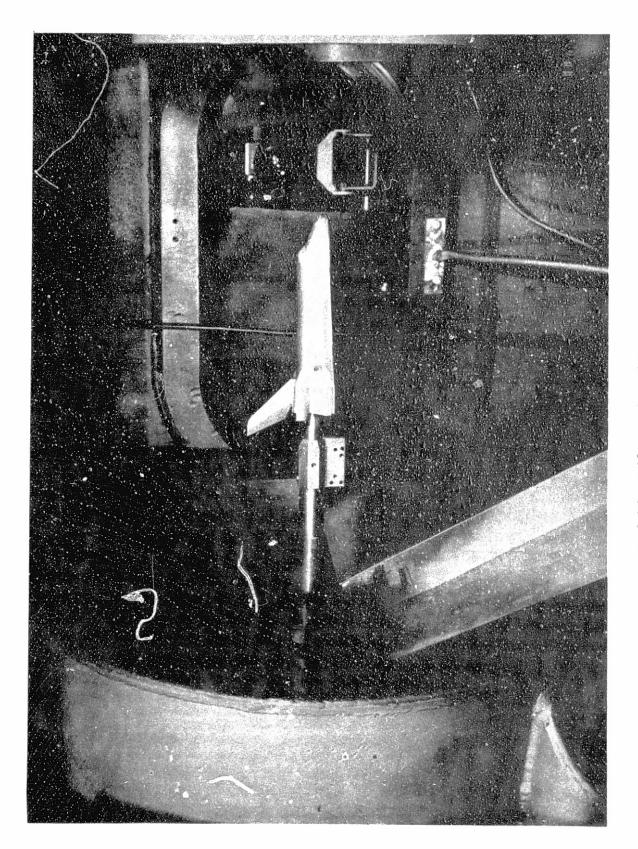
b. 41-T 0.006-Scale External Tank Thermocouple Locations

Figure 2. - Continued.



T, Temperature ~ °R

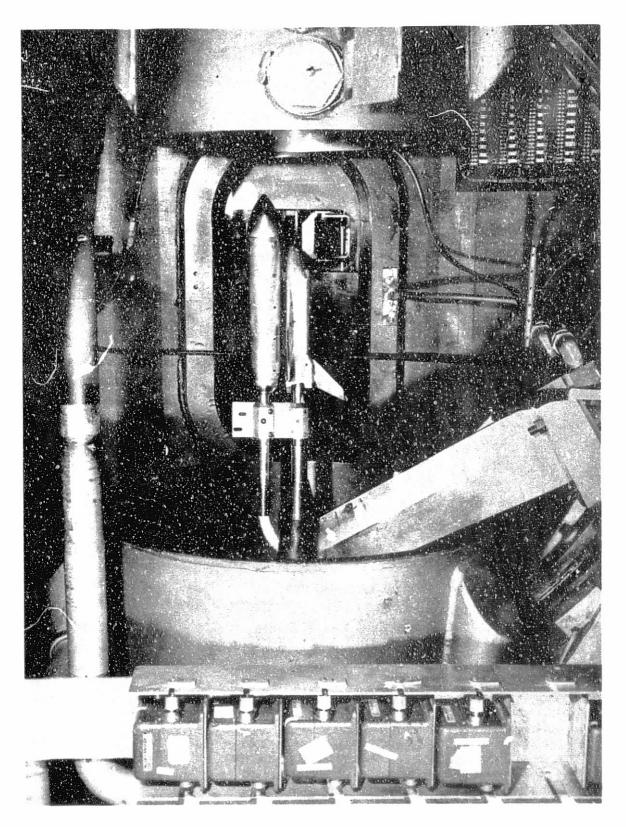
c. Specific Heat CurveFigure 2. - Concluded.



a. Orbiter Alone, No Trips

Figure 3. - Model photgraphs.

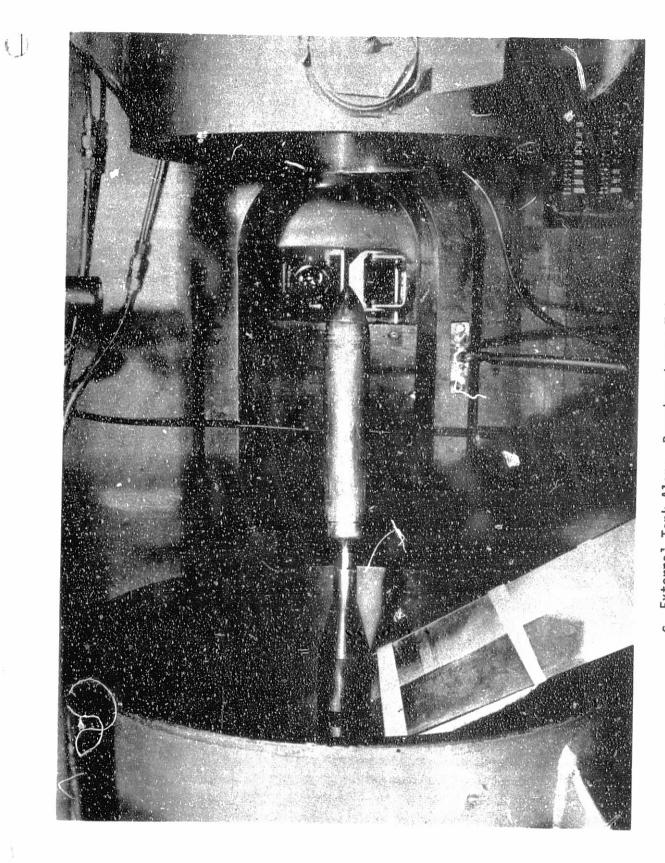
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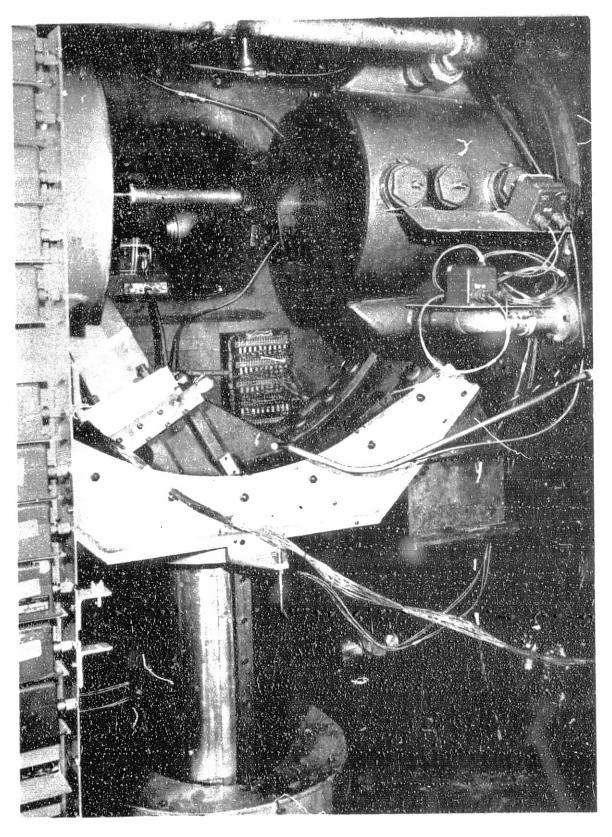


b. Orbiter Plus External Tank, No Trips

rbicer Plus External lank, No II Figure 3. ~ Continued.





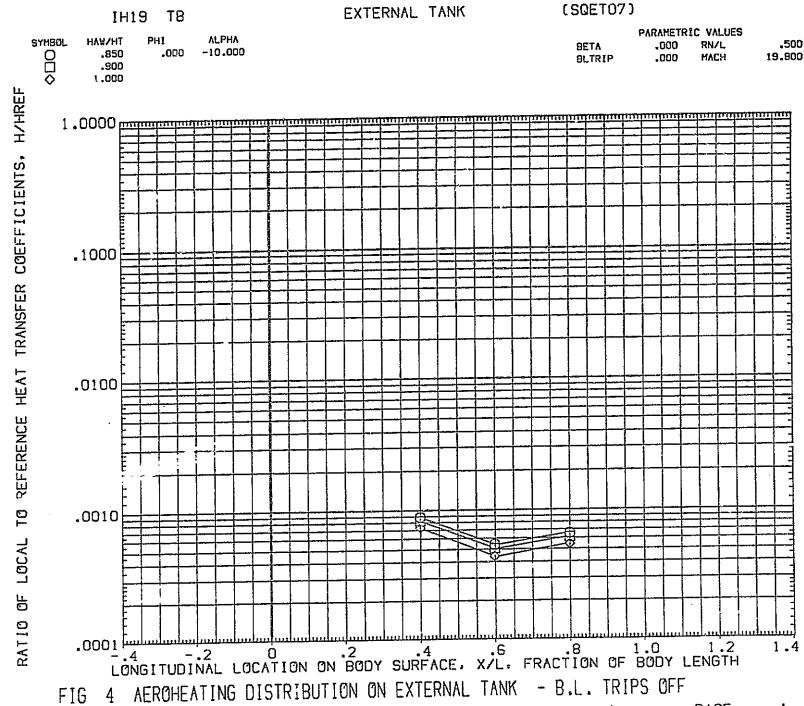


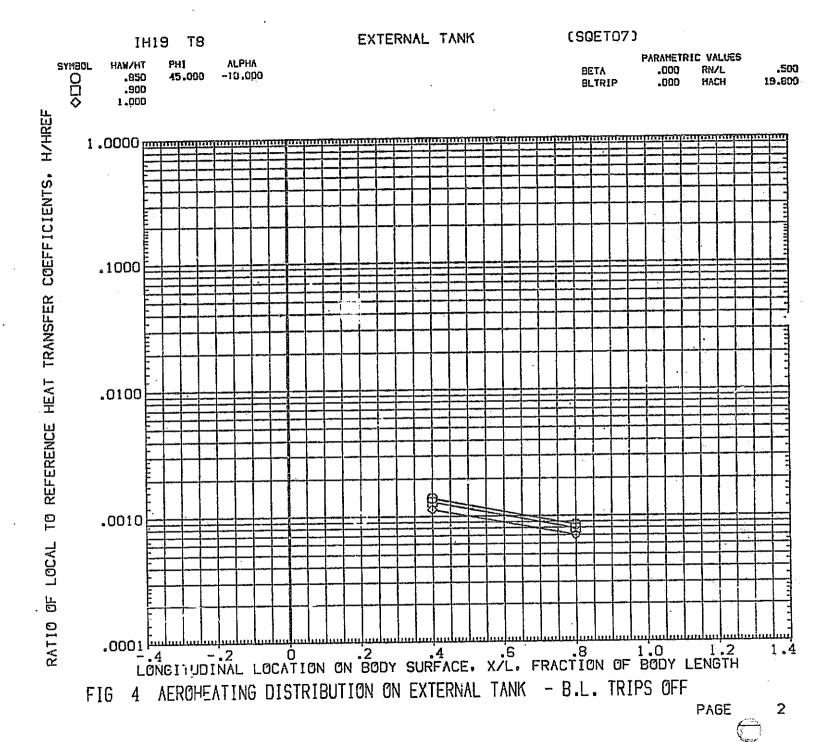
d. Typical Model Installation
Figure 3. - Concluded.

DATA FIGURES

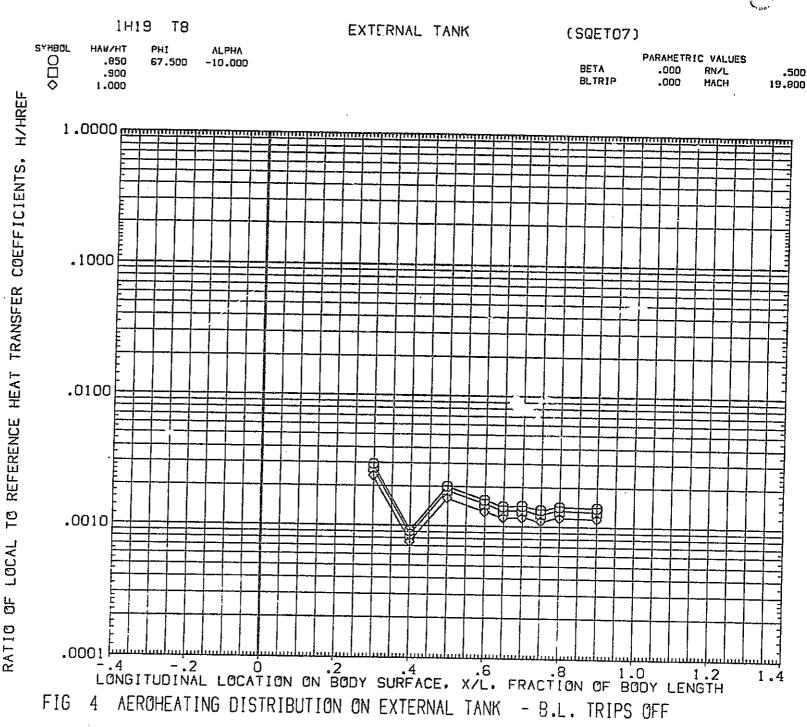
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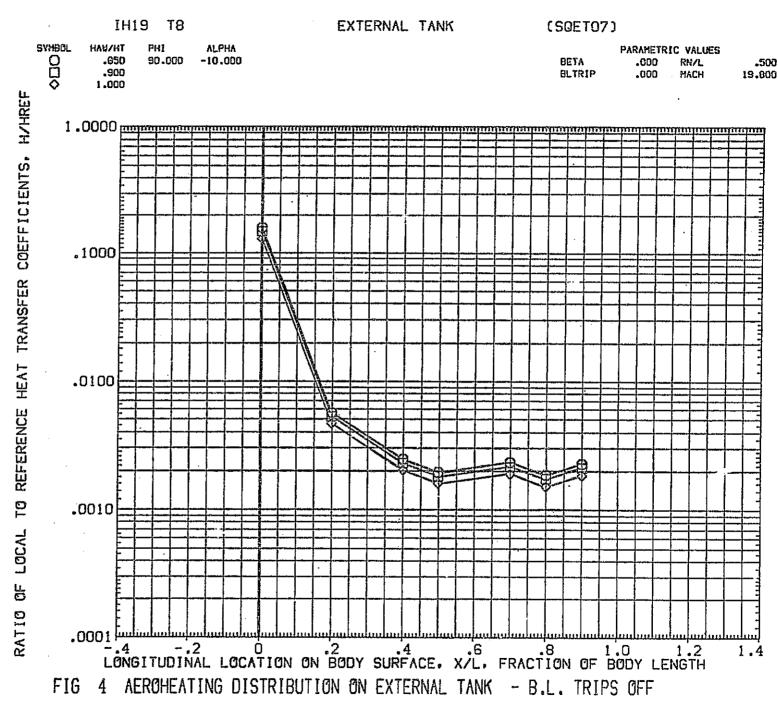








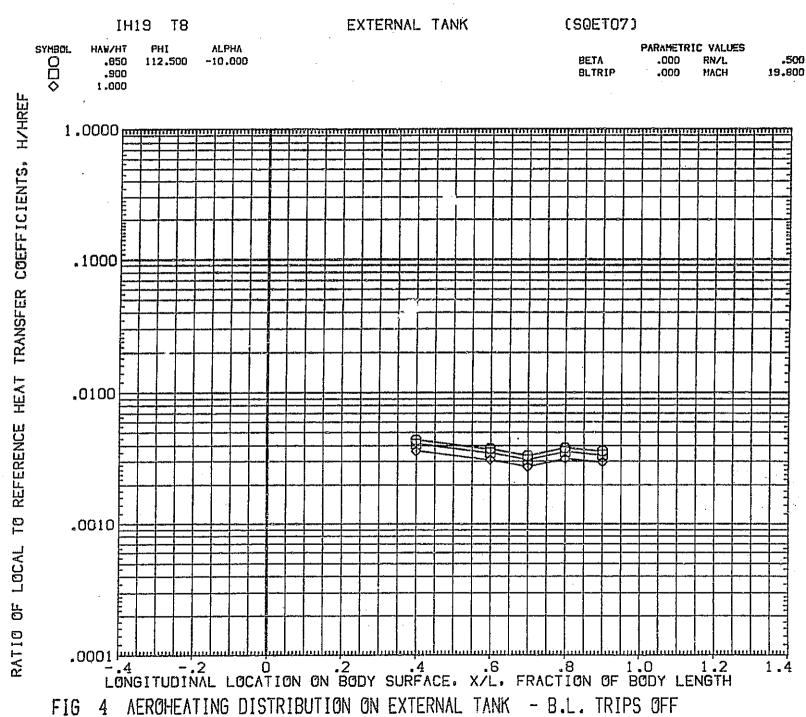




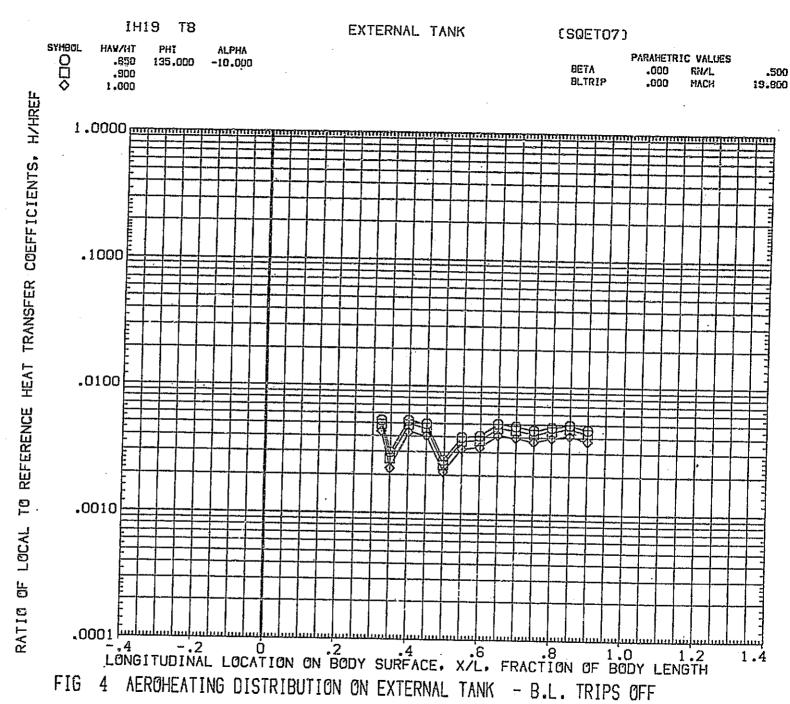


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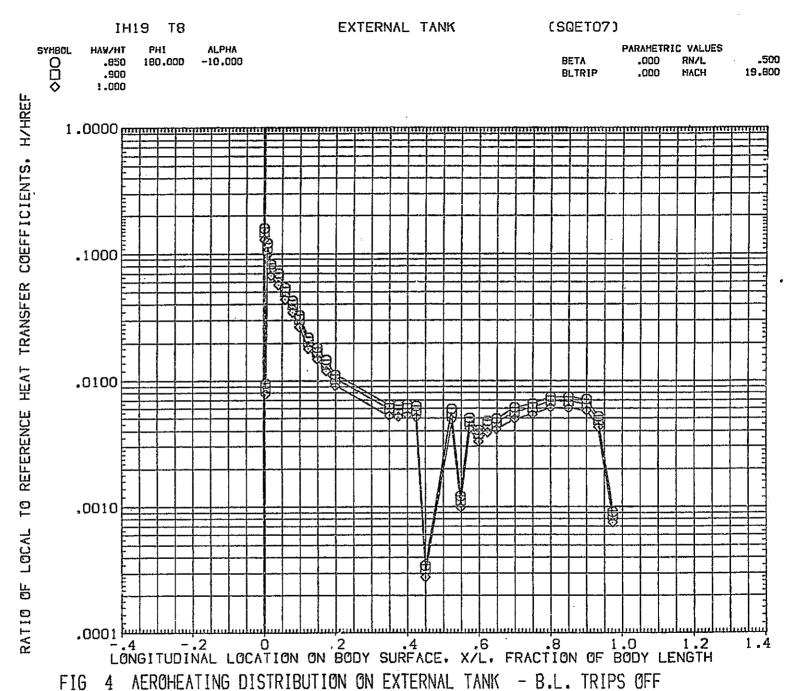






(SQETO7) IH19 T8 EXTERNAL TANK TH/W/H PHI ALPHA PARAMETRIC VALUES 000 .850 -16.000 BETA .000 RN/L .900 BLTRIP .000 HACH 19.800 1.000 H/HREF 1.0000COEFFICIENTS, .1000 TRANSFER HEAT .0100 REFERENCE 10 .0010 LOCAL 9 سا 0001. -.4 -.2 0 .2 .4 .6 .8 1.0 1.2 LONGITUDINAL LOCATION ON BODY SURFACE, X/L, FRACTION OF BODY LENGTH

FIG 4 AEROHEATING DISTRIBUTION ON EXTERNAL TANK - B.L. TRIPS OFF



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(SQETO7) IH19 T8 EXTERNAL TANK ALP-IA HAW/HT

PARAMETRIC VALUES SYMBOL BETA 000. RN/L 000 .650 -5.300 .000 HACH 19.800 BLTRIP .900 1.000

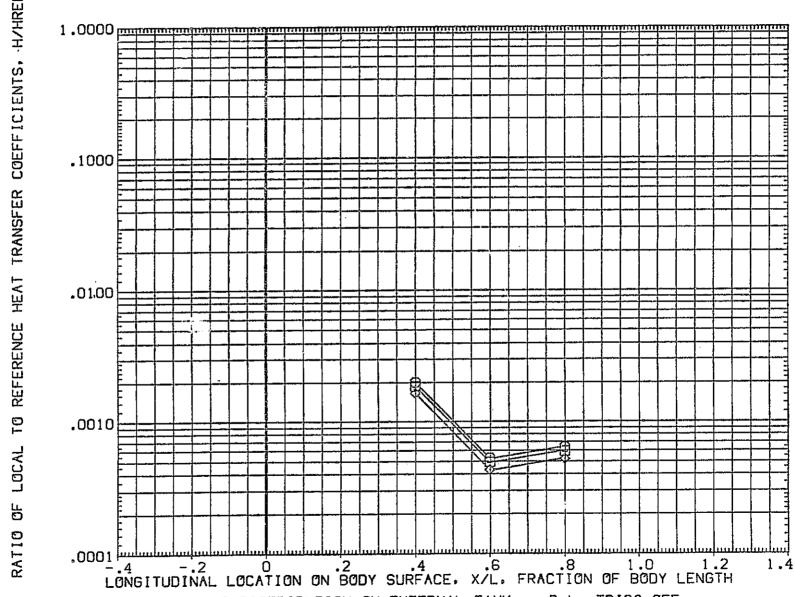
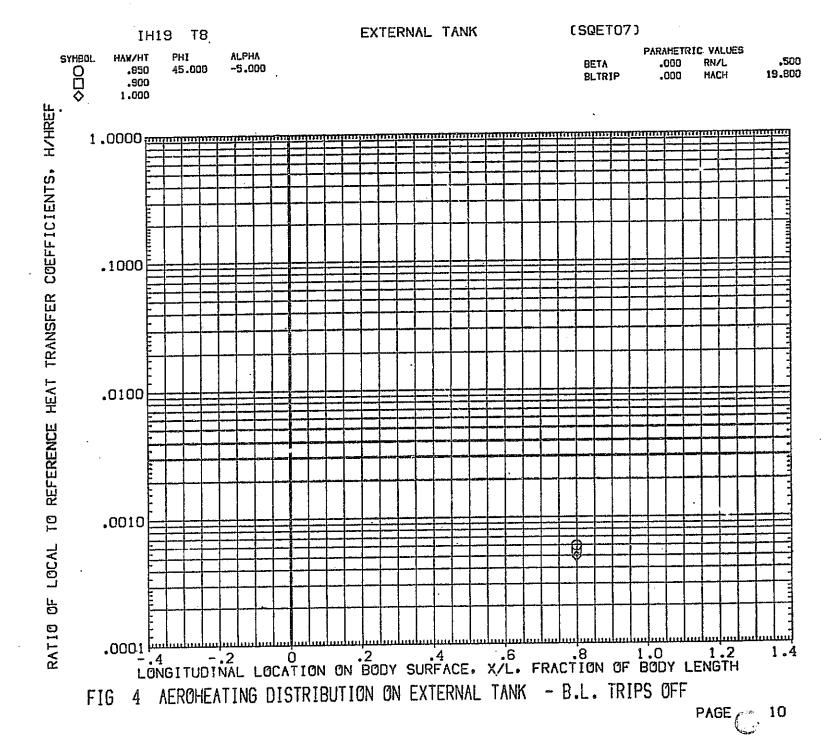
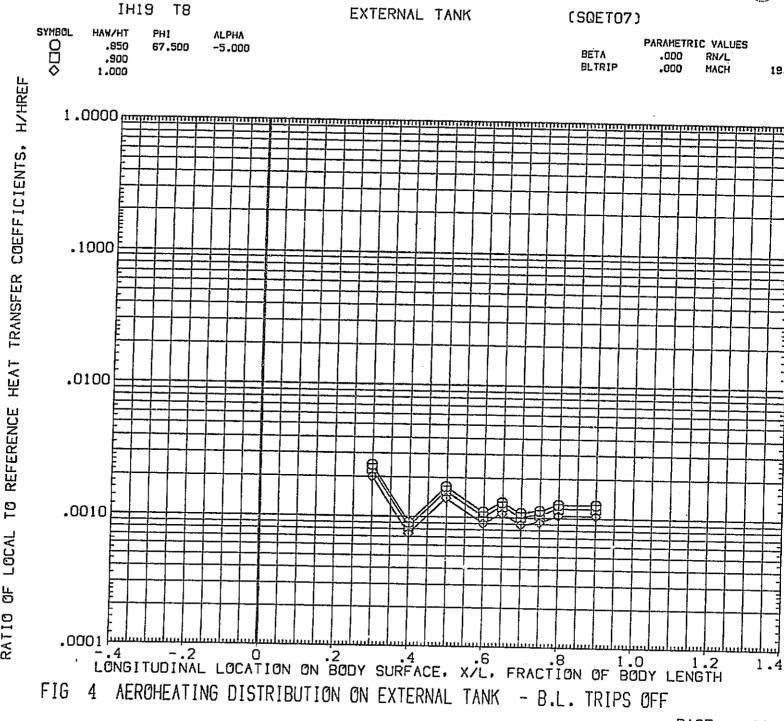


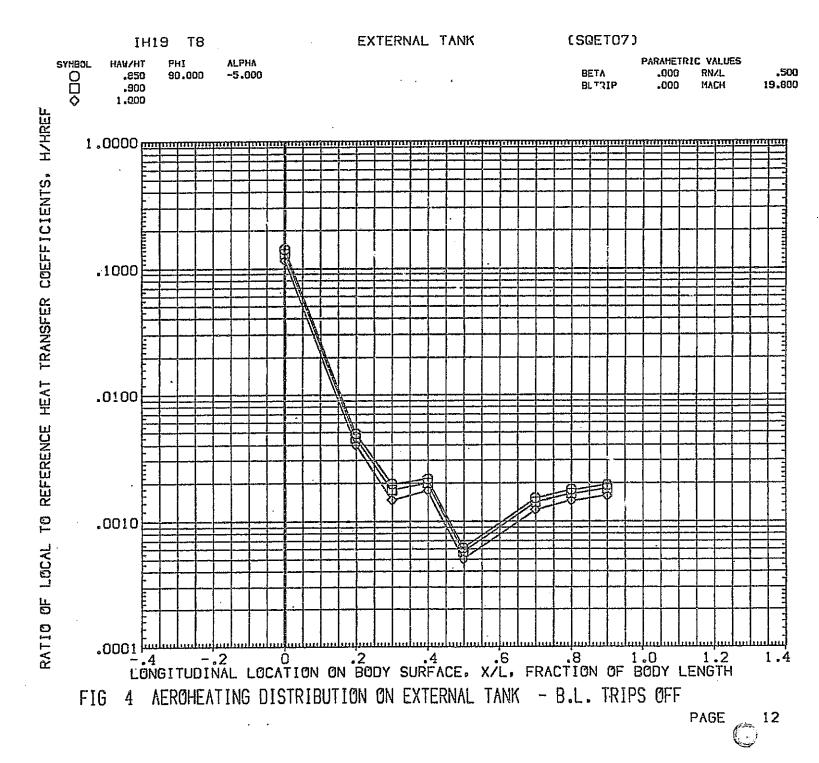
FIG 4 AEROHEATING DISTRIBUTION ON EXTERNAL TANK - B.L. TRIPS OFF

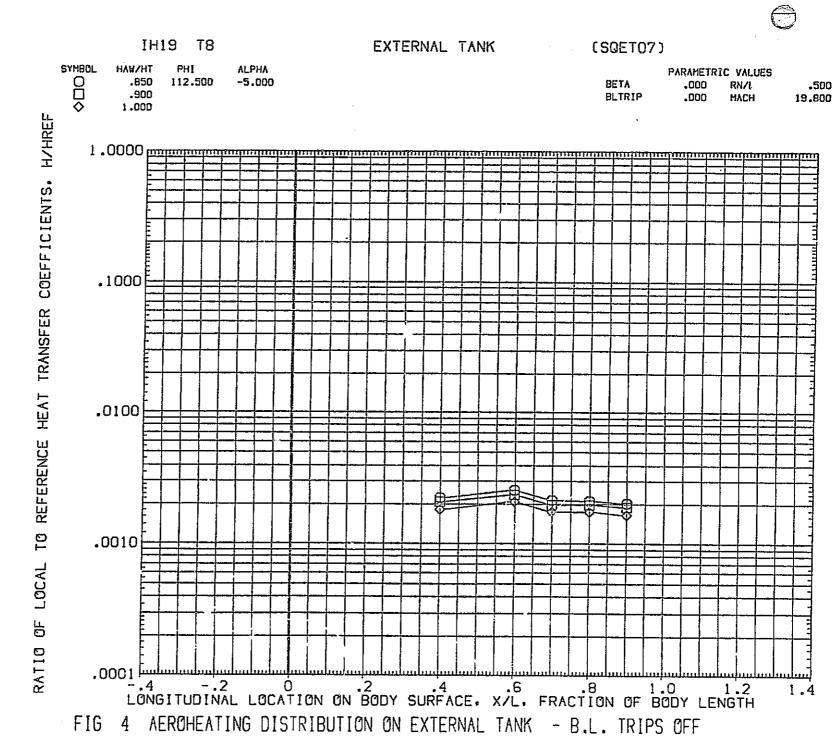












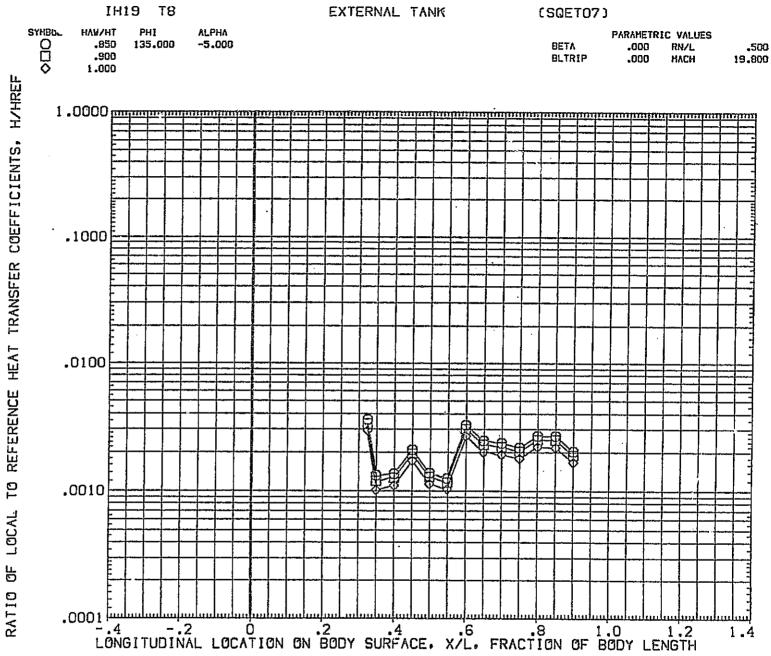
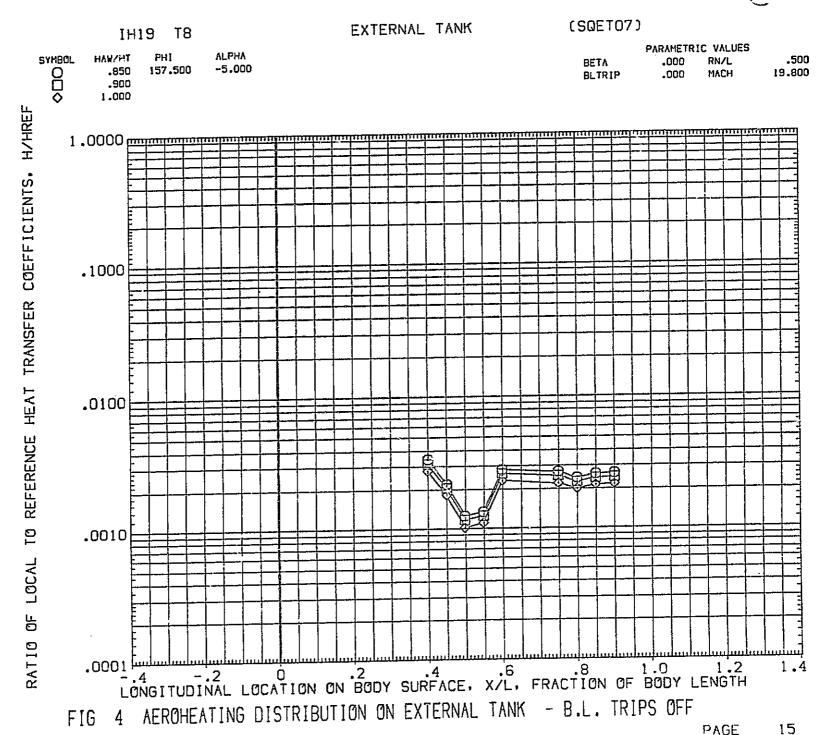


FIG 4 AEROHEATING DISTRIBUTION ON EXTERNAL TANK - B.L. TRIPS OFF





EXTERNAL TANK

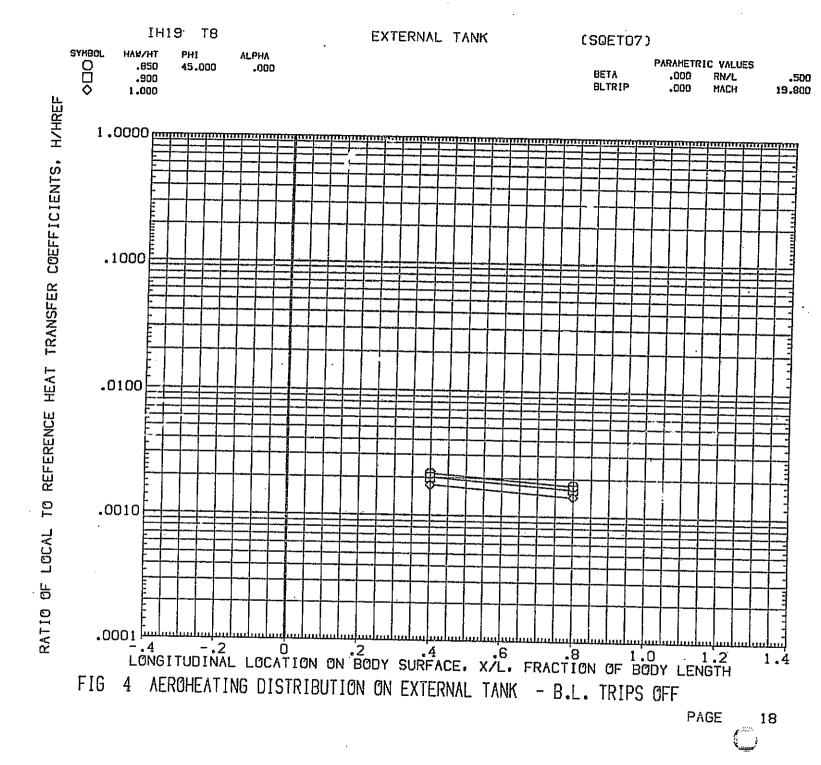
(SQET07)

IH19 T8

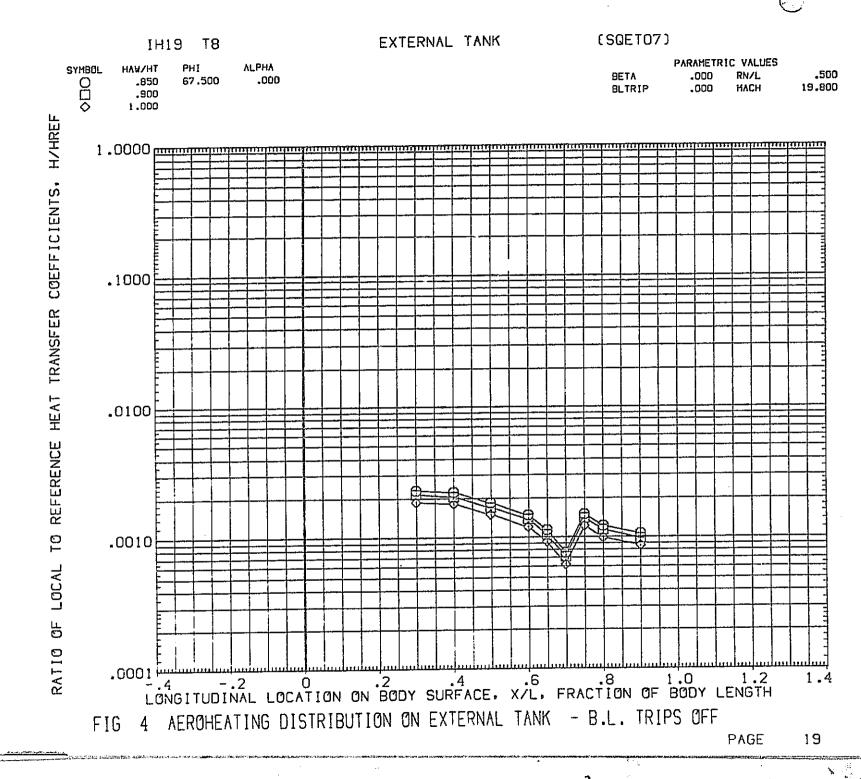
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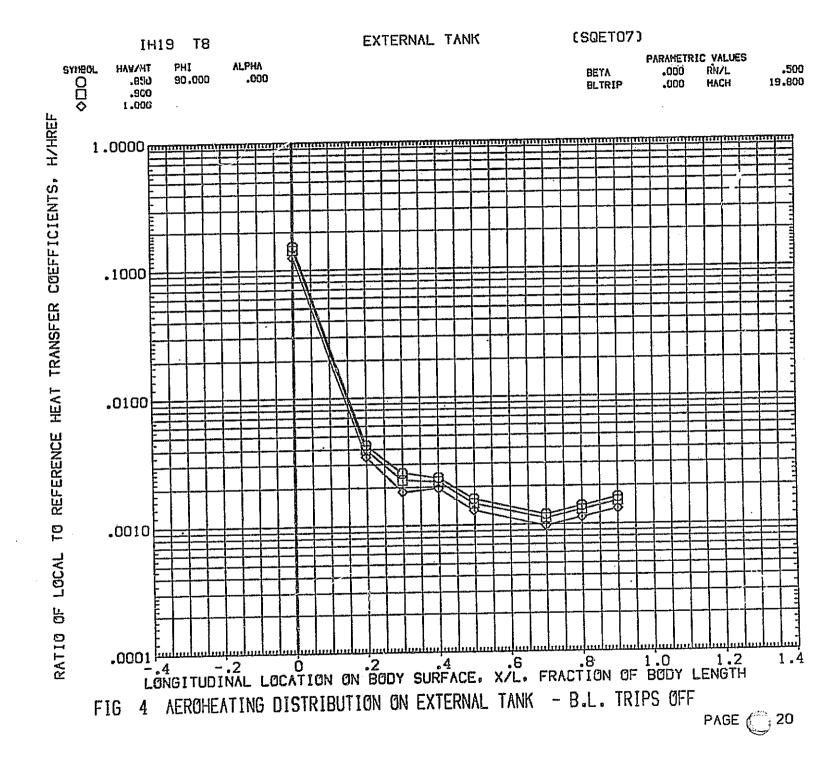
IH19 T8 EXTERNAL TANK (SQETO7) SYMBOL HAW/HT **ALPHA** PARAMETRIC VALUES 000 .850 BETA RN/L .500 .500 BLTRIP .000 MACH 19.800 1.000 H/HREF 1.0000 mmmm COEFFICIENTS. .1000 TRANSFER .0100 REFERENCE <u>D</u> .0010 LOCAL OF. .6 .8 LONGITUDINAL LOCATION ON BODY SURFACE, X/L, FRACTION OF BODY LENGTH FIG 4 AEROHEATING DISTRIBUTION ON EXTERNAL TANK - B.L. TRIPS OFF

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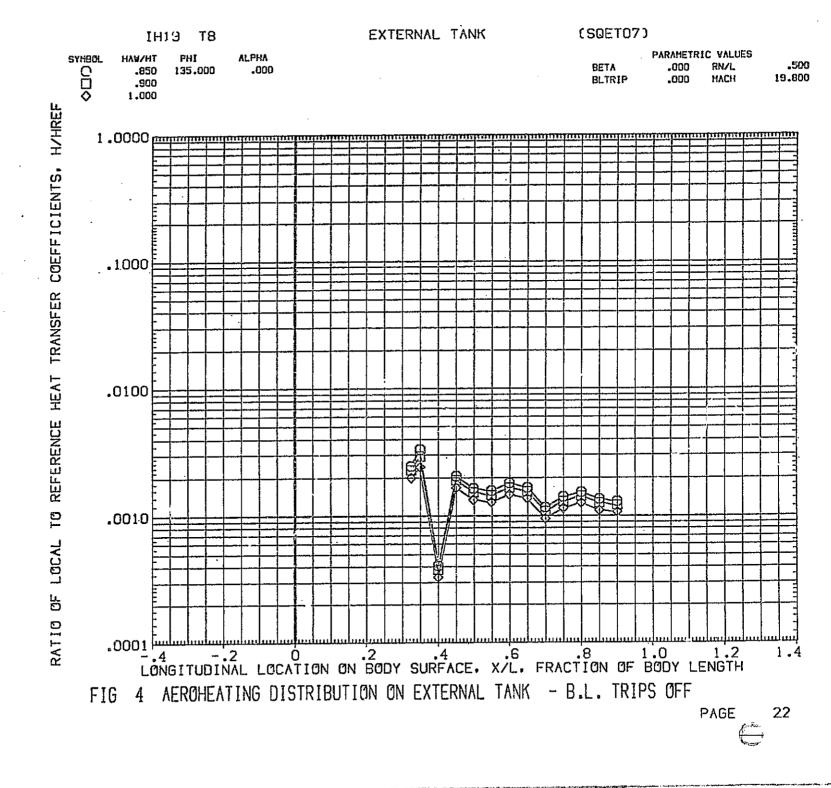
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(SQETO7) EXTERNAL TANK IH19 T8 PARAMETRIC VALUES .500 **ALPHA** RN/L .000 BETA 19.800 .000 112,500 .000 BLTRIP .900 1.000 1.0000 mmmmm COEFFICIENTS. .1000 TRANSFER HEAT .0100 REFERENCE 10 .0010 LOCAL LONGITUDINAL LOCATION ON BODY SURFACE, X/L, FRACTION OF BODY LENGTH

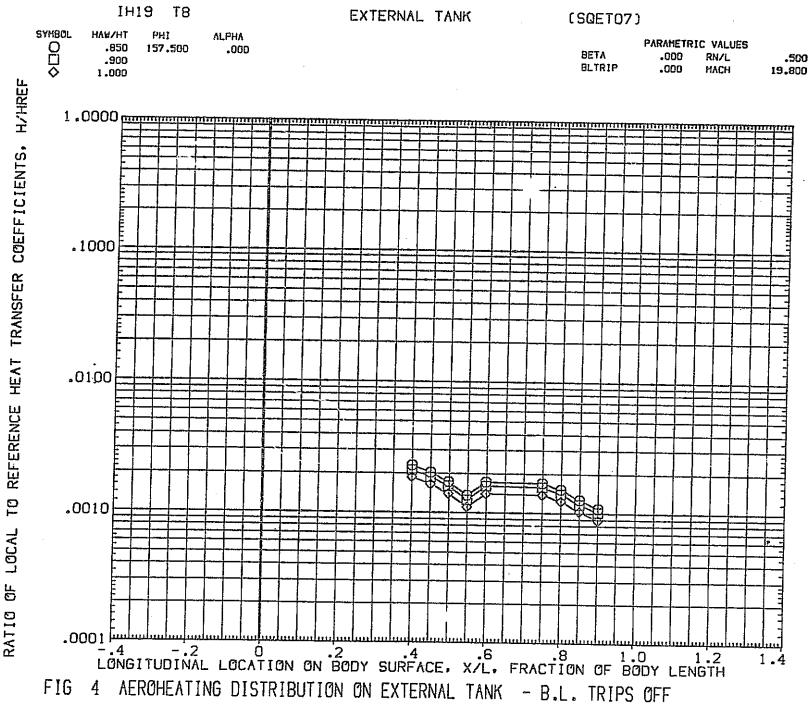
FIG 4 AEROHEATING DISTRIBUTION ON EXTERNAL TANK - B.L. TRIPS OFF



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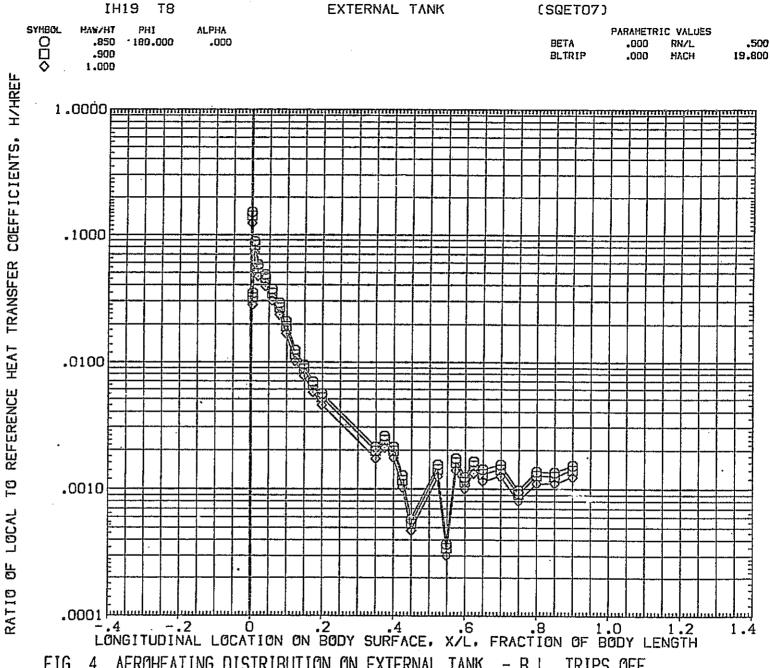


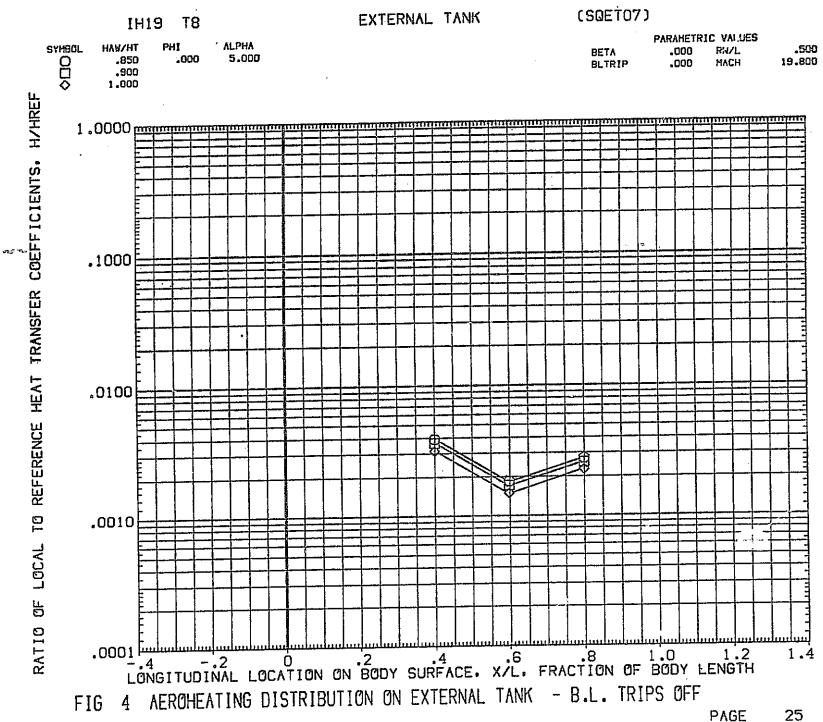
FIG 4 AEROHEATING DISTRIBUTION ON EXTERNAL TANK - B.L. TRIPS OFF

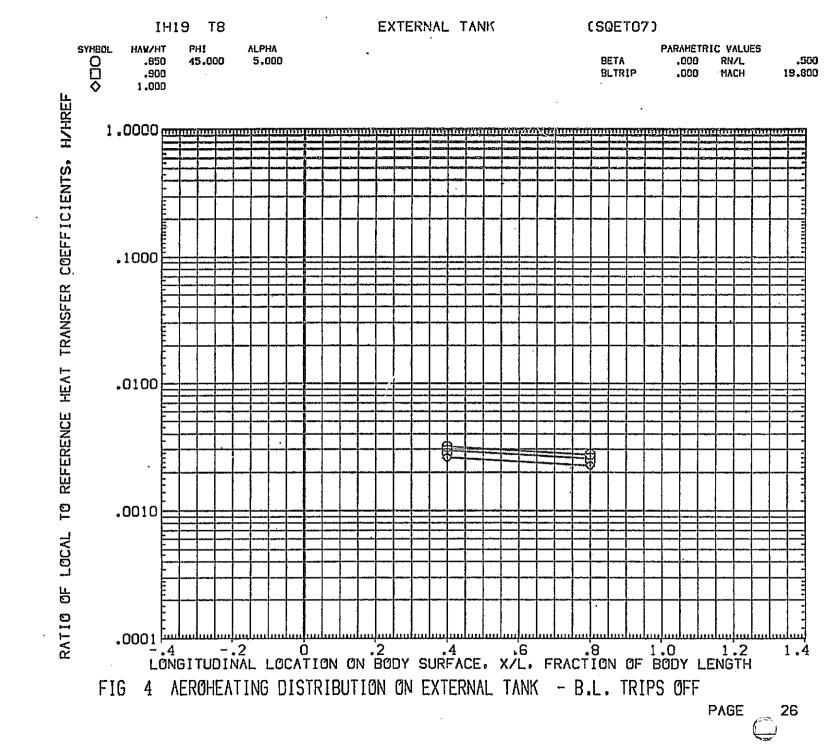
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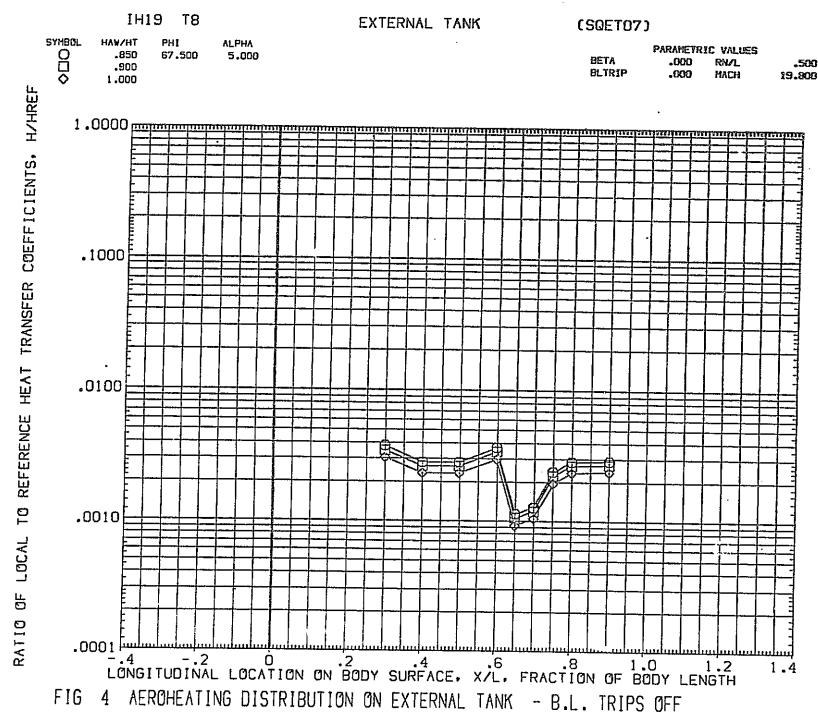




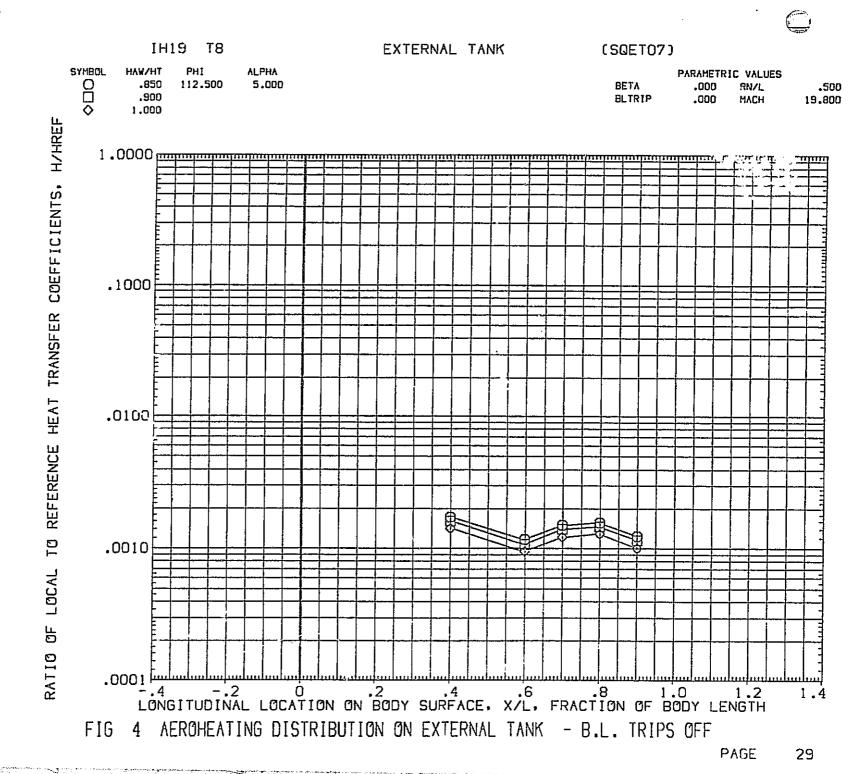
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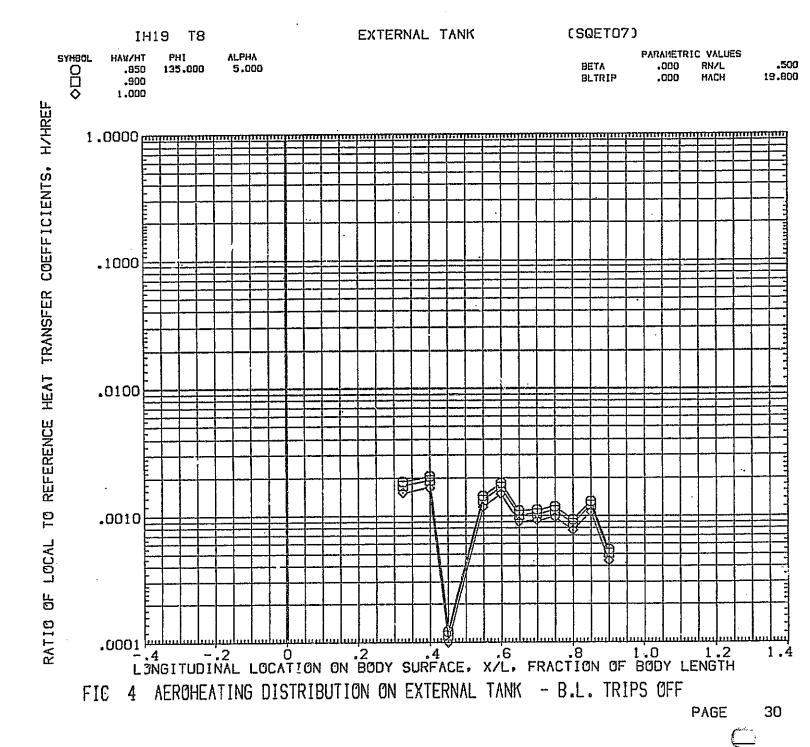


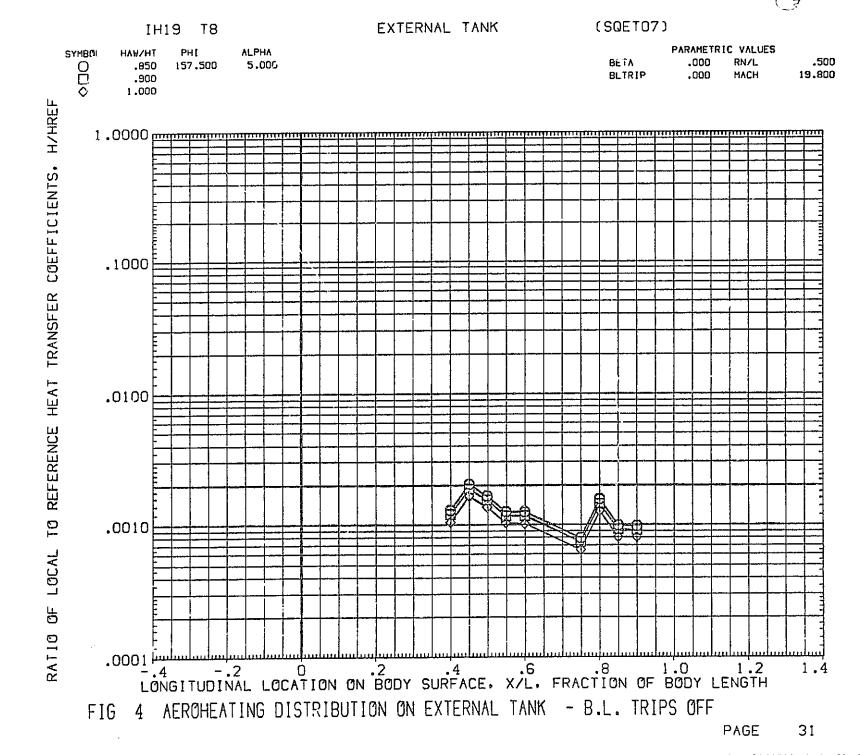




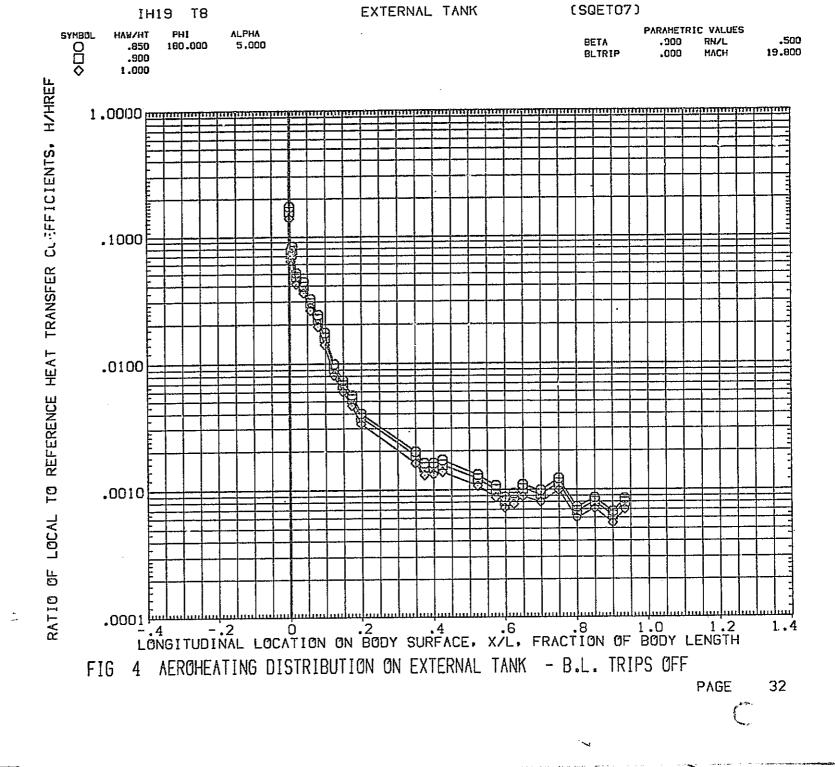
IH19 T8 EXTERNAL TANK (SQETO7) SYMBOL HAWAHT PHI **ALPHA** PARAMETRIC VALUES 000 .850 90.000 5.000 BETA .000 RN/L .900 BLTRIP .000 HACH 19.800 1.000 H/HREF 1.0000 mmm COEFFICIENTS, .1000 TRANSFER .0100 REFERENCE .0010 LOCAL P سا 2000ء -.4 -.2 0 .2 .4 .6 .8 1.0 1.2 LONGITUDINAL LOCATION ON BODY SURFACE, X/L, FRACTION OF BODY LENGTH 1.4 FIG 4 AEROHEATING DISTRIBUTION ON EXTERNAL TANK - B.L. TRIPS OFF



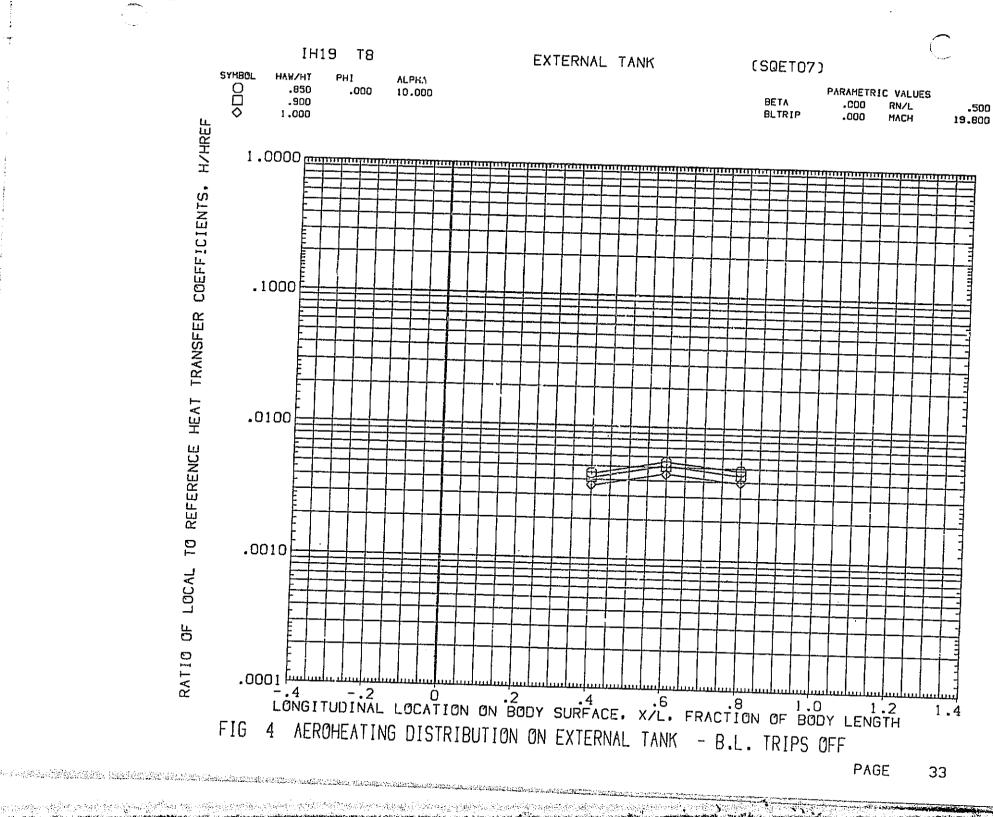


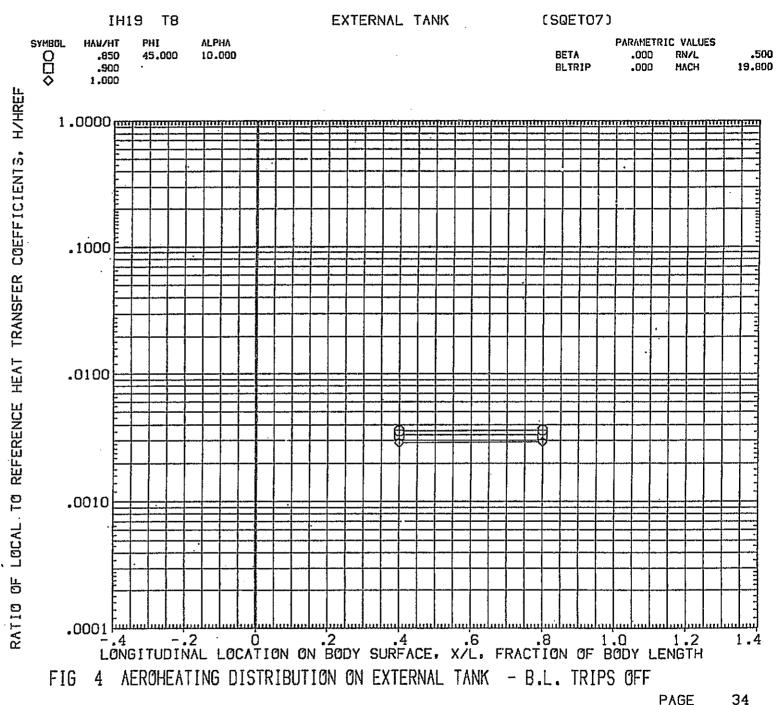


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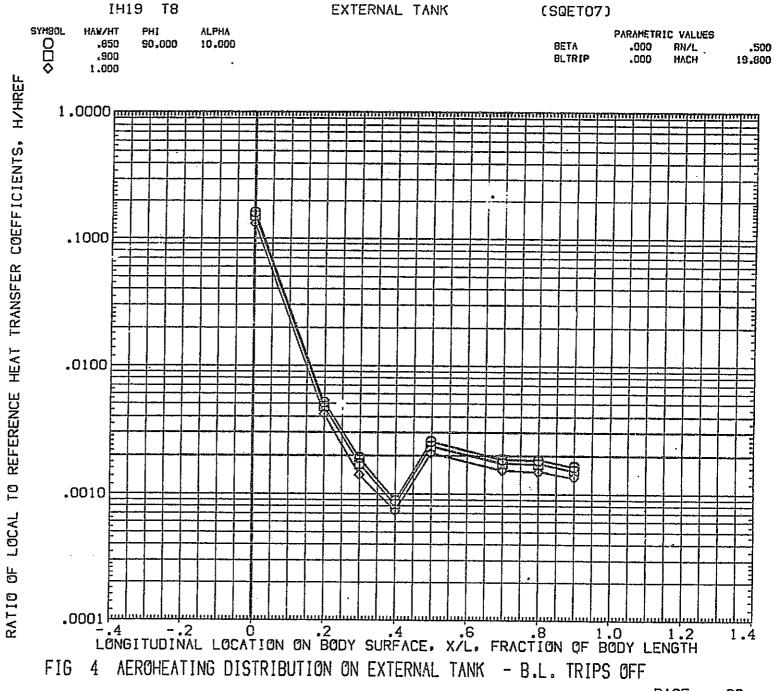


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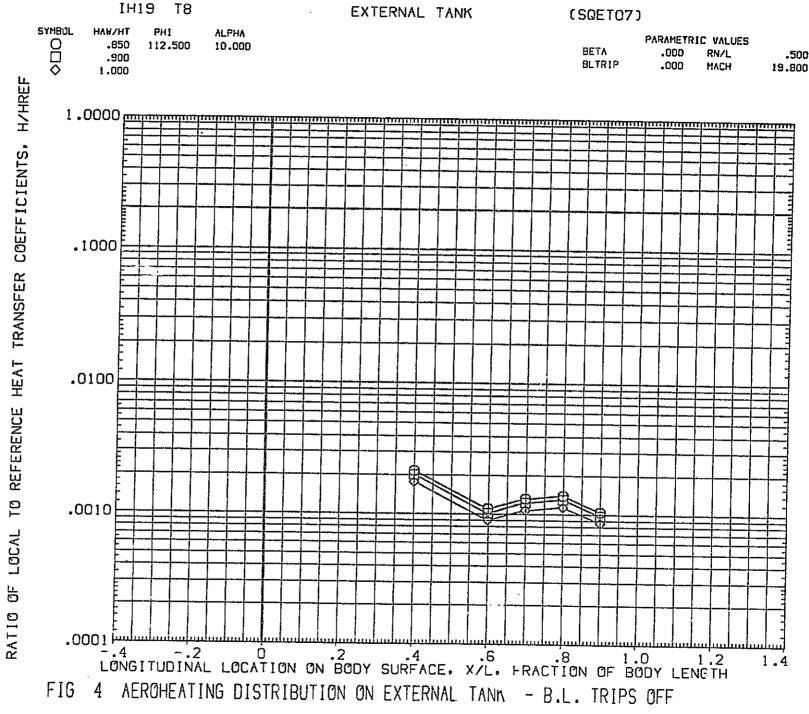


(SQETO7) EXTERNAL TANK PARAMETRIC VALUES IH19 T8 .500 RN/L .000 BETA 19.800 MACH **ALPHA** PHI 67.500 .000 BLTRIP HAWAHT SYMBOL 10.000 000 .900 1.000 H/HREF 1.0000 mmmmpmm COEFFICIENTS. .1000 HEAT TRANSFER .0100 REFERENCE .0010 LOCAL 원 LONGITUDINAL LOCATION ON BODY SURFACE, X/L, FRACTION OF BODY LENGTH RATIO .0001 h FIG 4 AEROHEATING DISTRIBUTION ON EXTERNAL TANK - B.L. TRIPS OFF

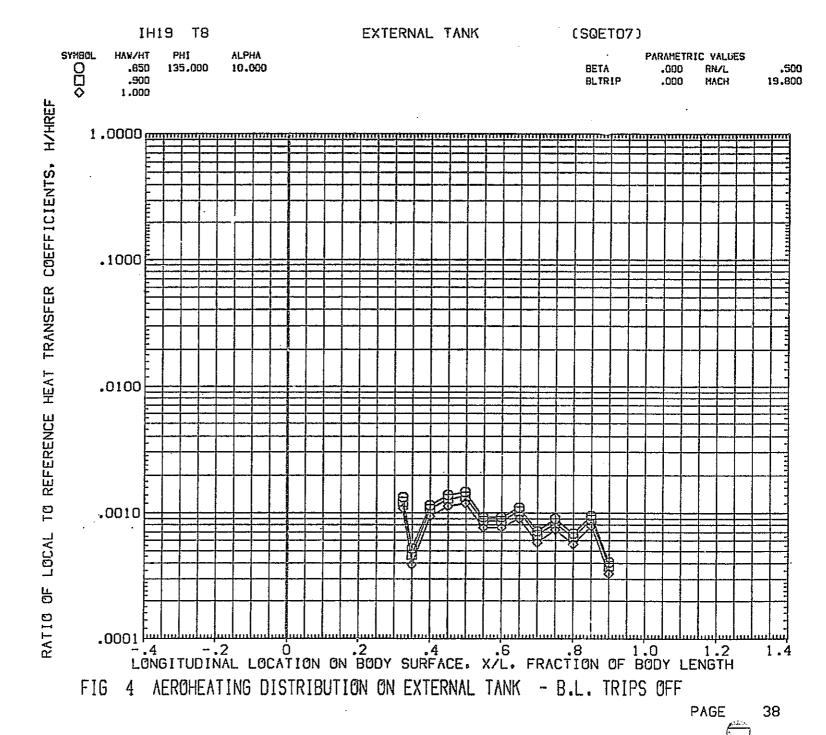


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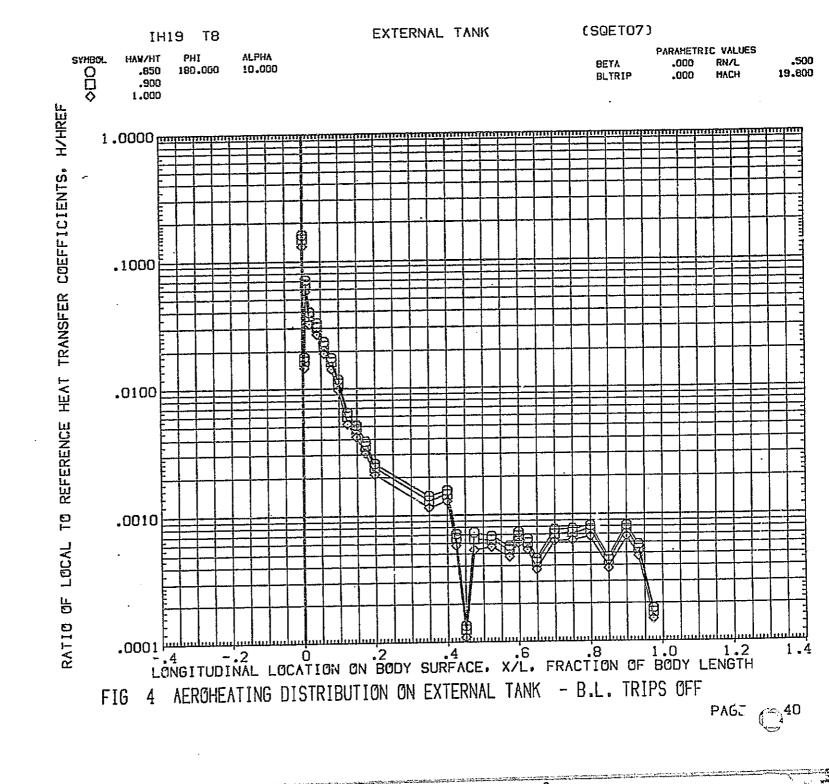




IH19 T8 EXTERNAL TANK (SQETO7) 000 157.500 PARAMETRIC VALUES .850 BETA .900 .000 RN/L BLTRIP 1.000 .000 MACH 19.800 1.0000 <u>шининин</u> COEFFICIENTS, .1000 TRANSFER HEAT .0100 REFERENCE 10 .0010 LOCAL P لسا 2000. LONGITUDINAL LOCATION ON BODY SURFACE, X/L, FRACTION OF BODY LENGTH FIG 4 AEROHEATING DISTRIBUTION ON EXTERNAL TANK - B.L. TRIPS OFF

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IH19 B22C7F5M4V7W111 T8 EXTERNAL TANK

(SQETO2)

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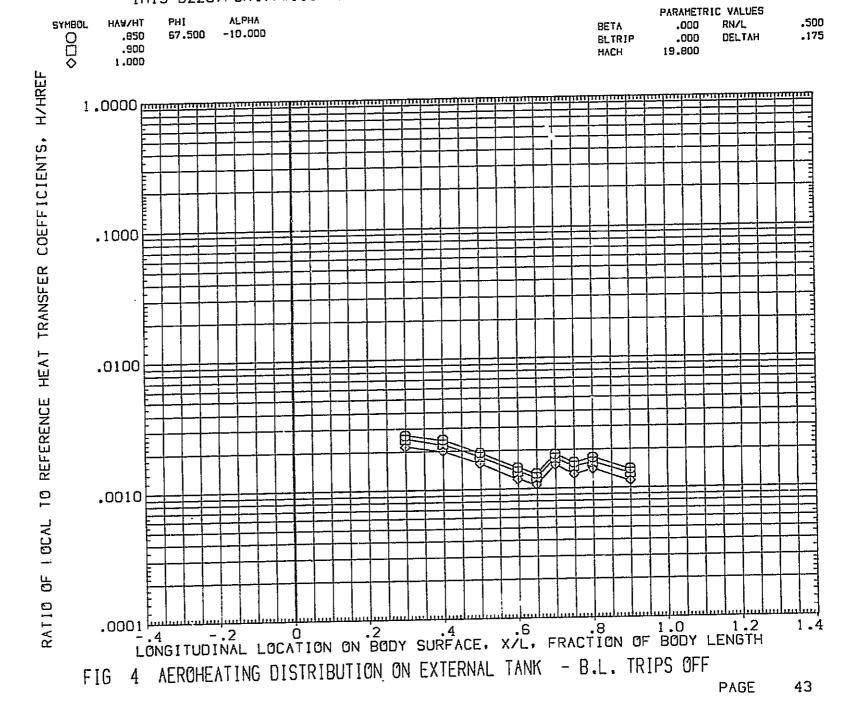


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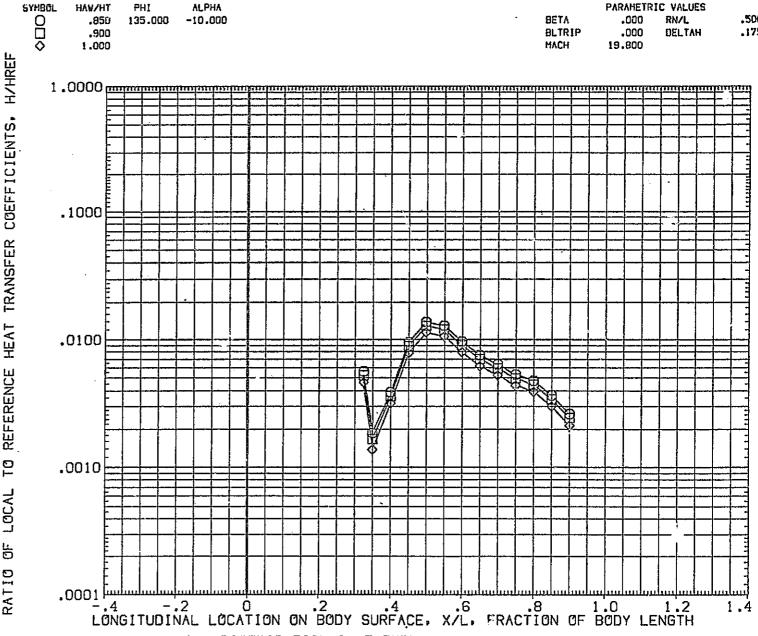


FIG 4 AEROHEATING DISTRIBUTION ON EXTERNAL TANK - B.L. TRIPS OFF

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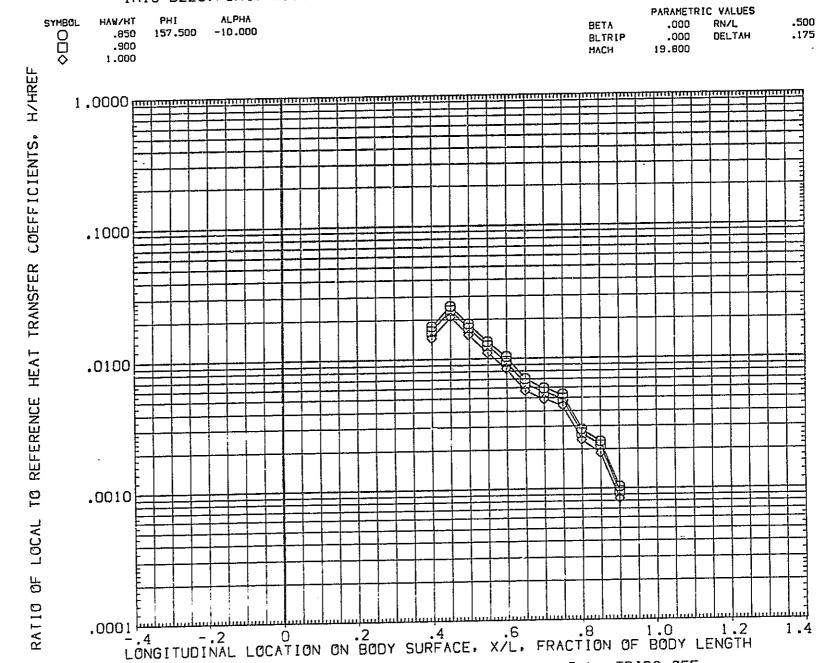
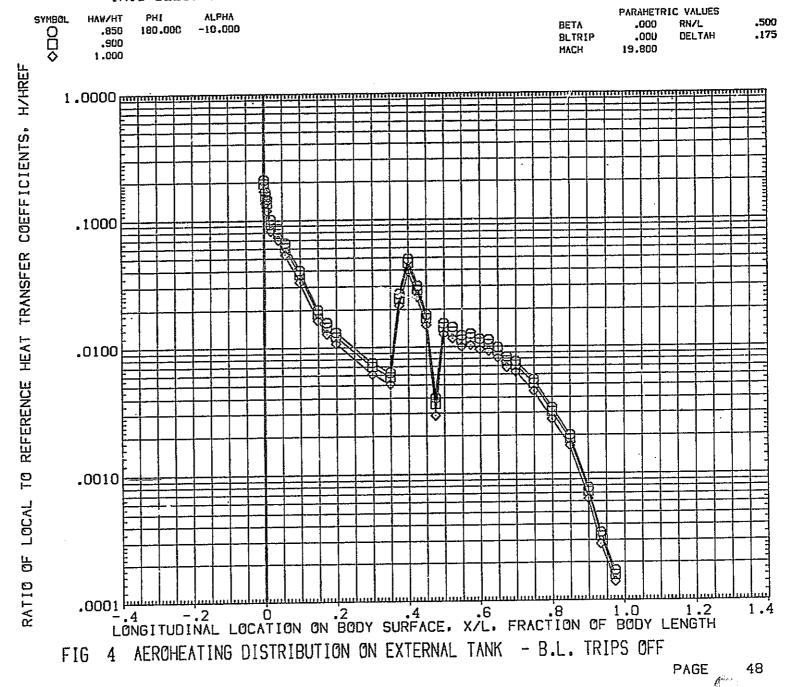


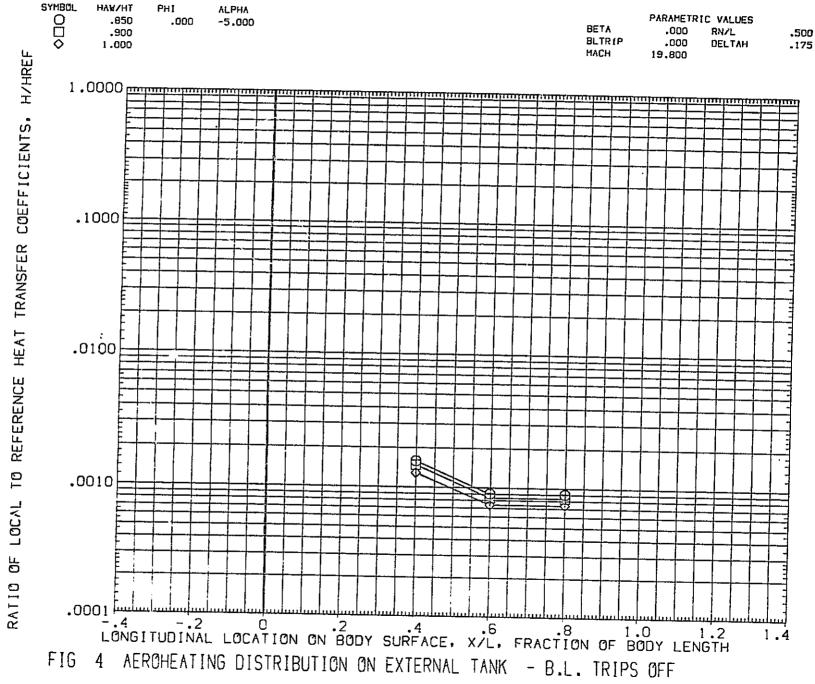
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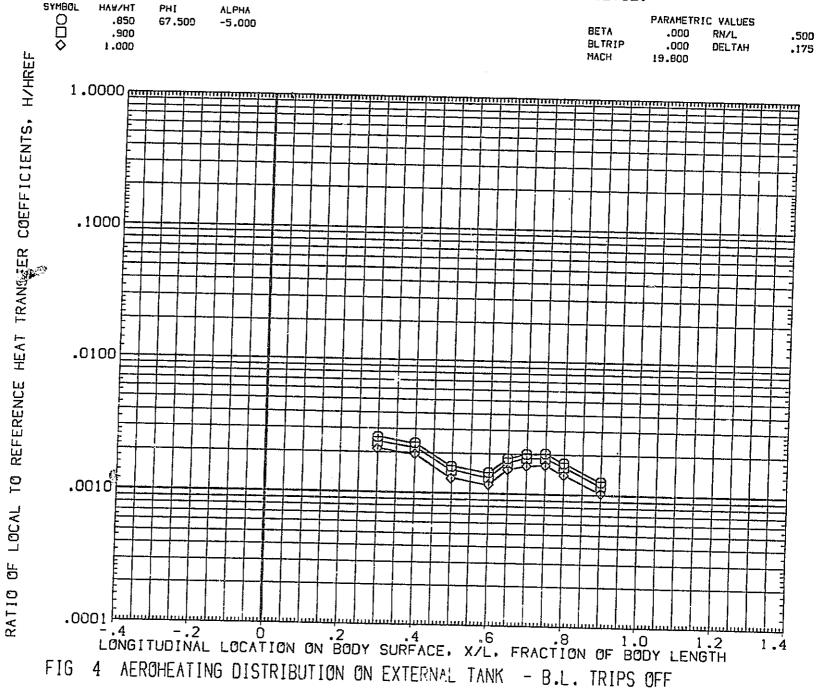


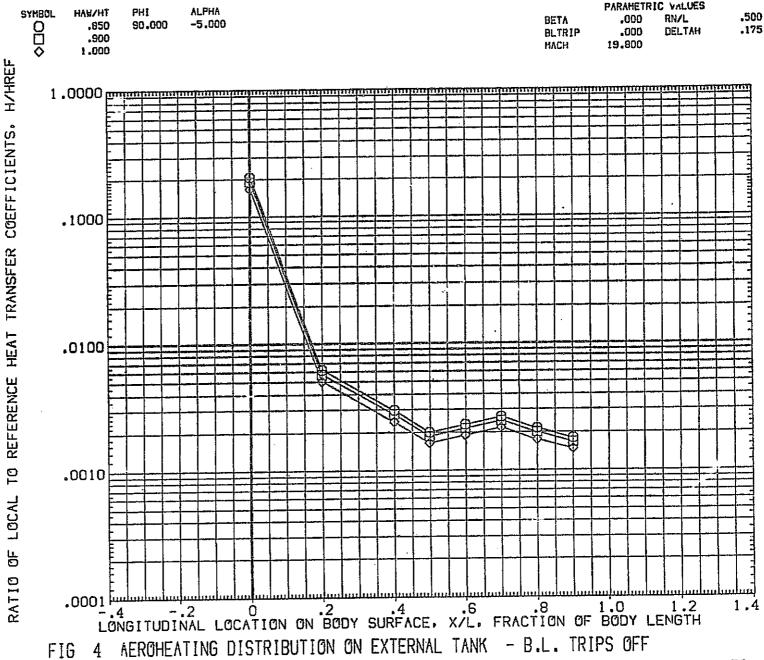
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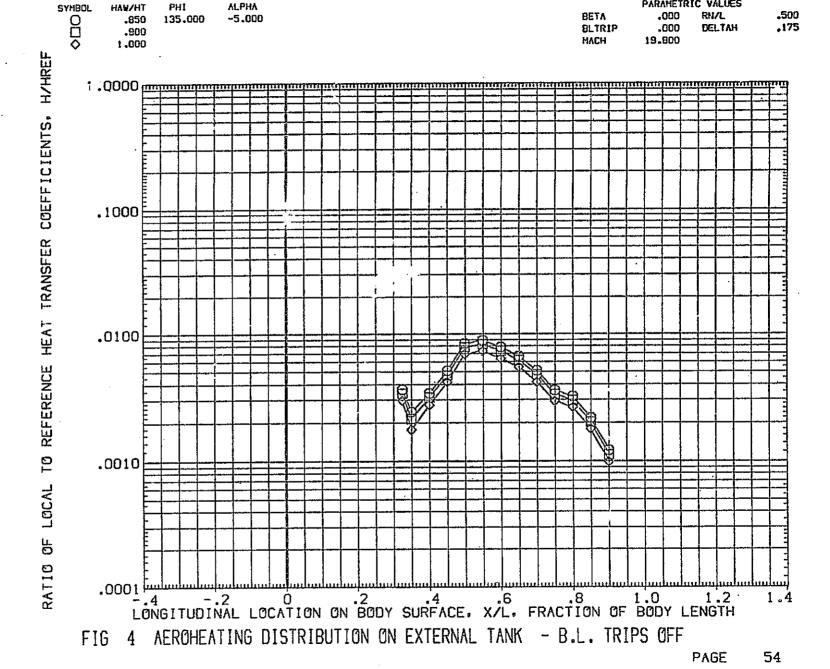




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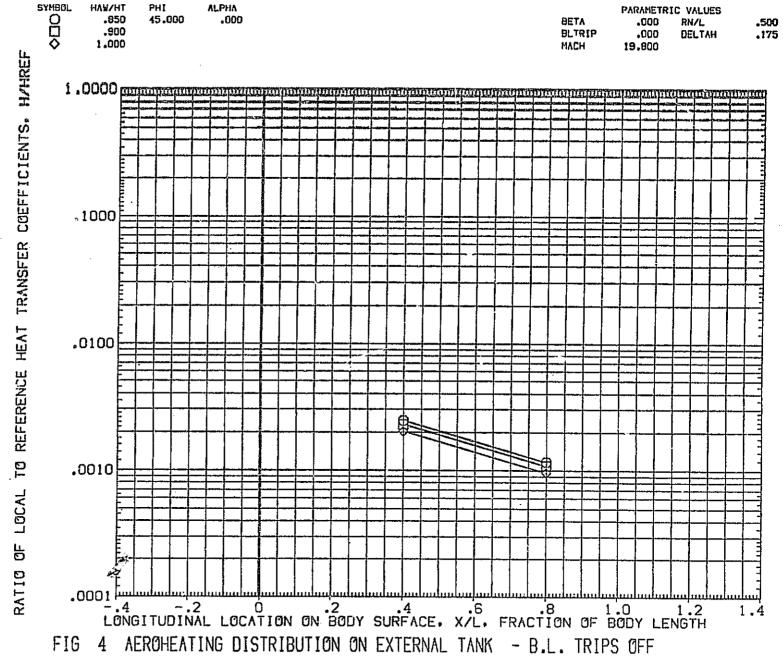
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IH19 B22C7F5M4V7W111 T8 EXTERNAL TANK (SQETO2) SYMBOL HAW/HT PH: **ALPHA** 000 PARAMETRIC VALUES .850 .000 .000 BETA .900 .000 RNZL .500 BLTRIP .000 1.000 DELTAH -175 MACH H/HREF 19.800 COEFFICIENTS. .1000 TRANSFER .0100 REFERENCE 10 .0010 **9** RATIO LONGITUDINAL LOCATION ON BODY SURFACE, X/L, FRACTION OF BODY LENGTH FIG 4 AEROHEATING DISTRIBUTION ON EXTERNAL TANK - B.L. TRIPS OFF

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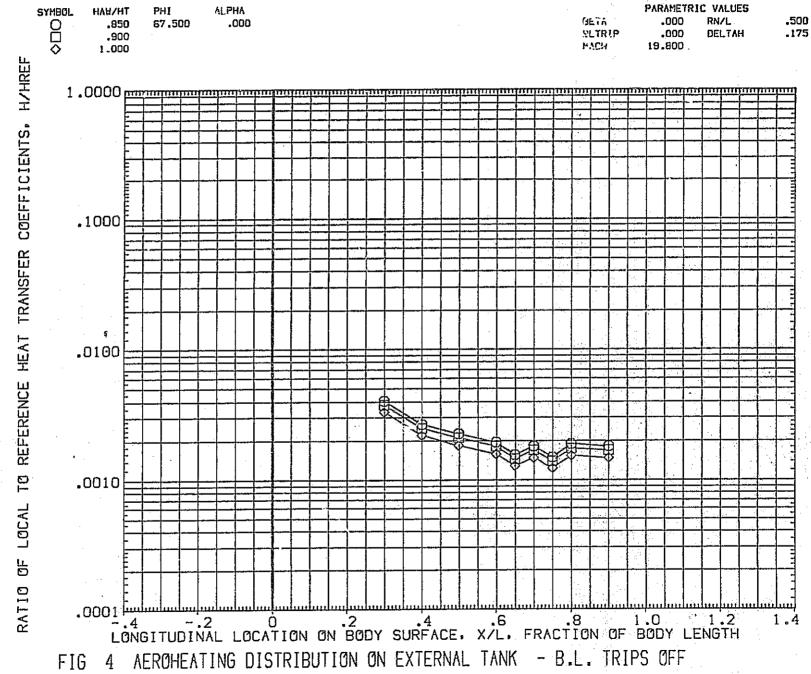


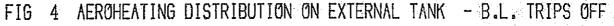
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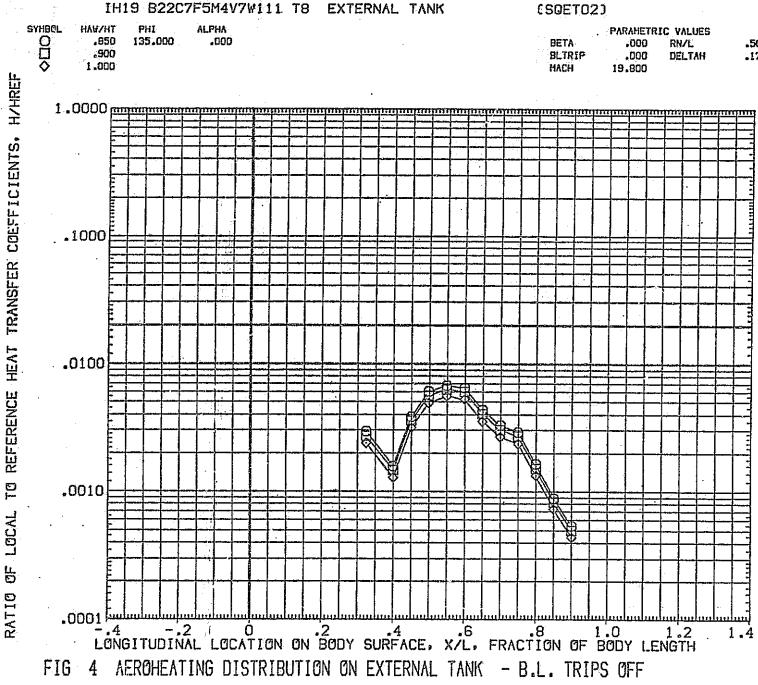


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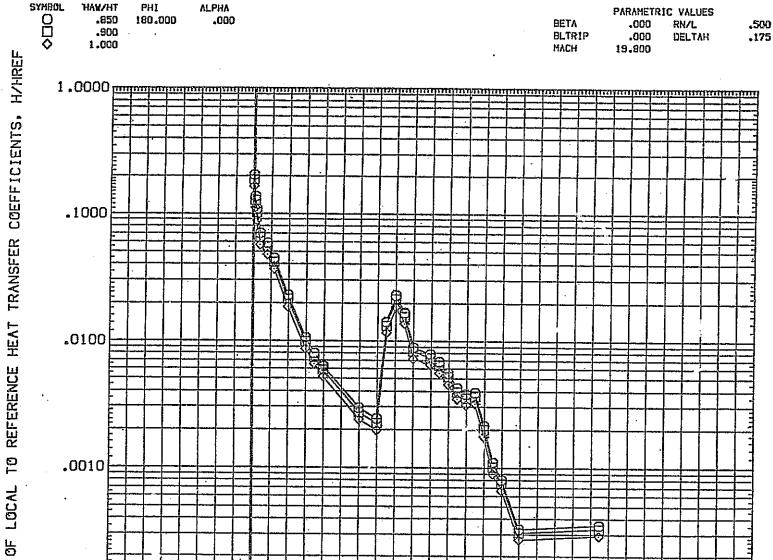


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LONGITUDINAL LOCATION ON BODY SURFACE. X/L, FRACTION OF BODY LENGTH
FIG 4 AEROHEATING DISTRIBUTION ON EXTERNAL TANK - B.L. TRIPS OFF

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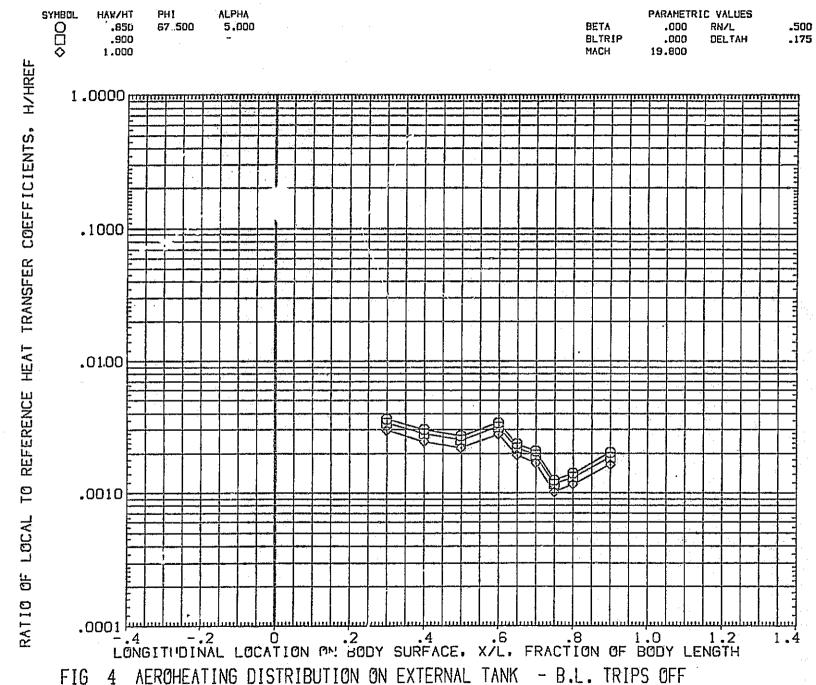
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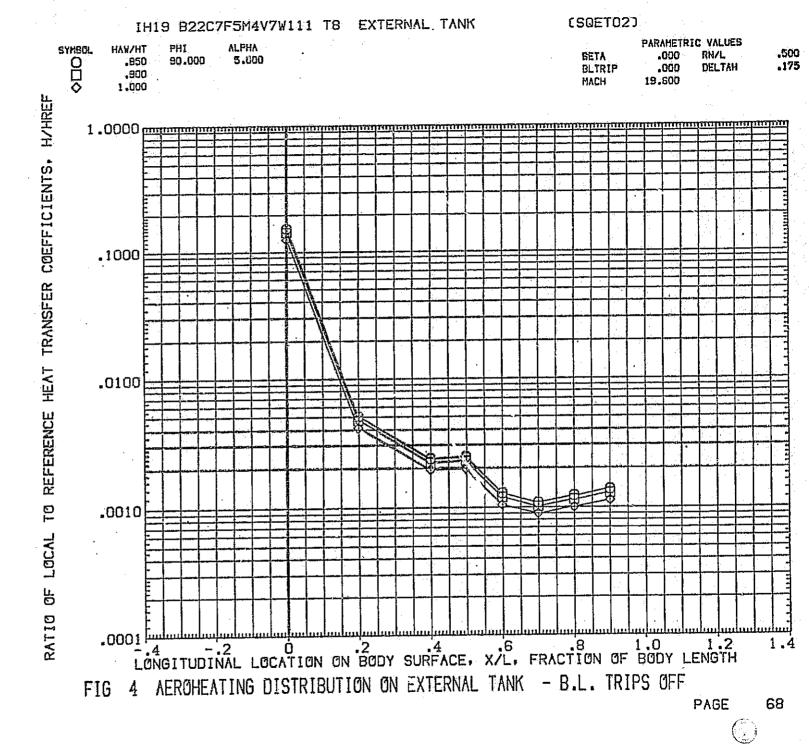




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PARAMETRIC VALUES

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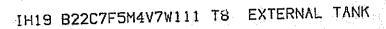
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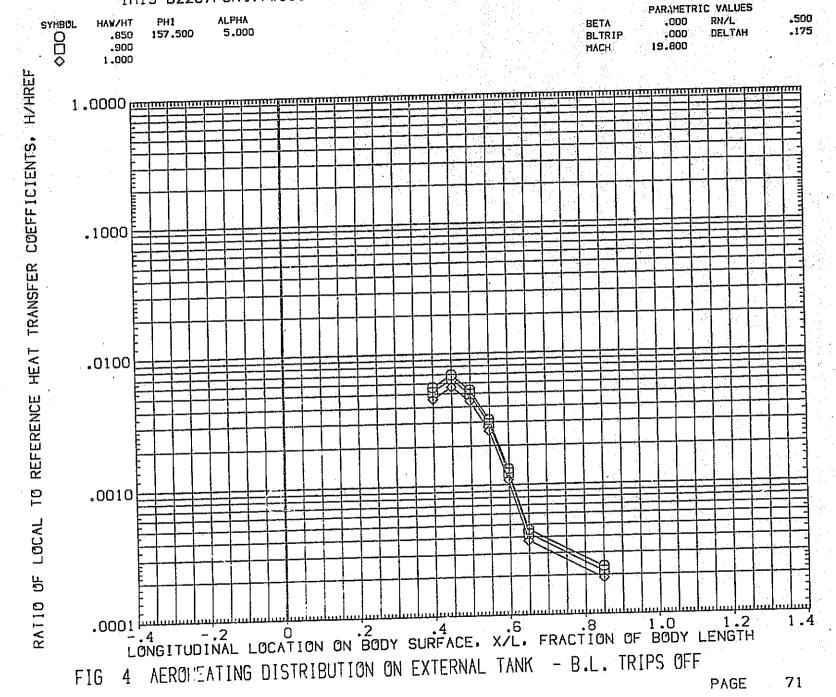
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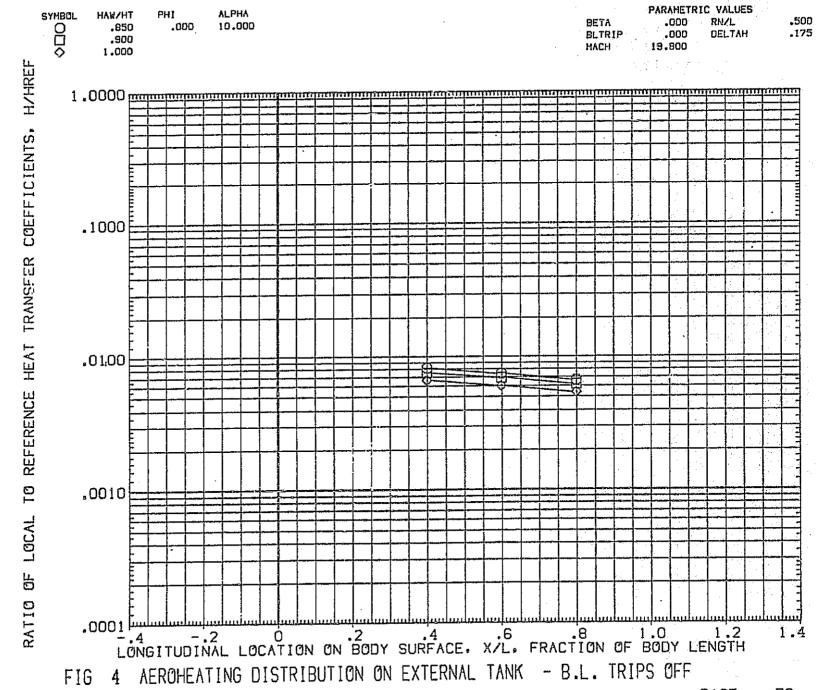
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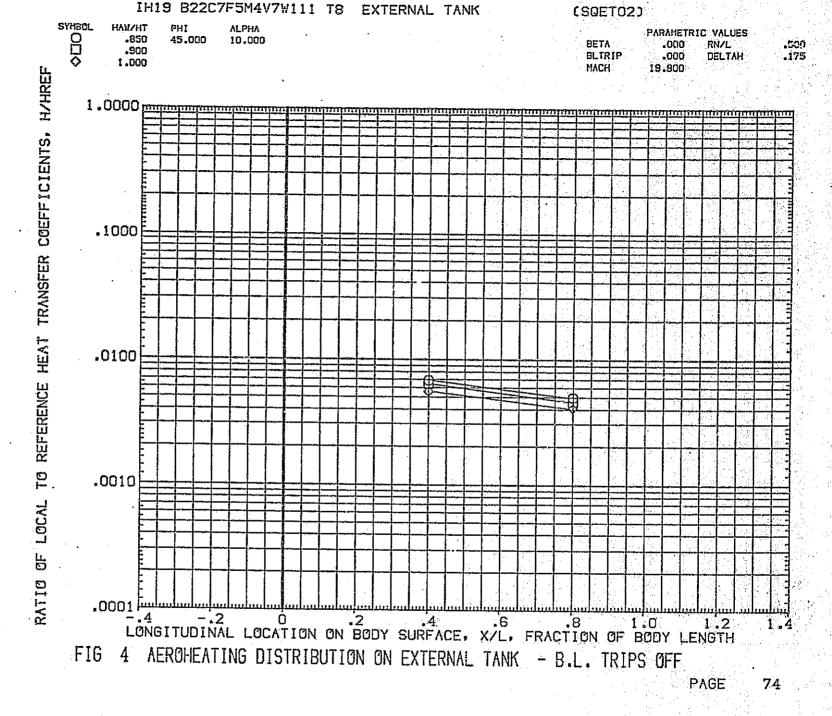




IH19 B22C7F5M4V7W111 T8 EXTERNAL TANK

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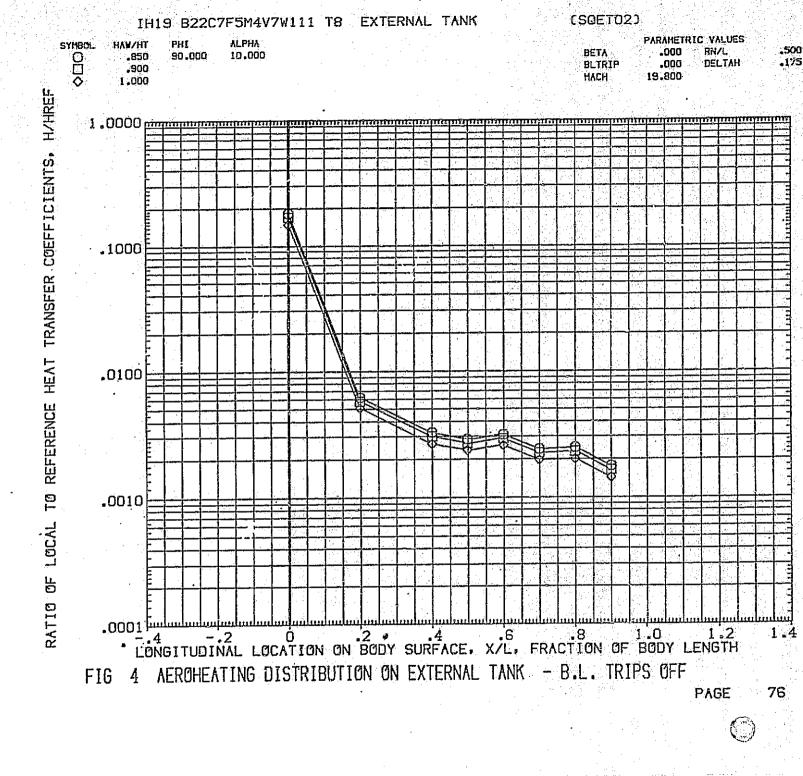
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PARAMETRIC VALUES

IH19 B22C7F5M4V7W111 T8 EXTERNAL TANK

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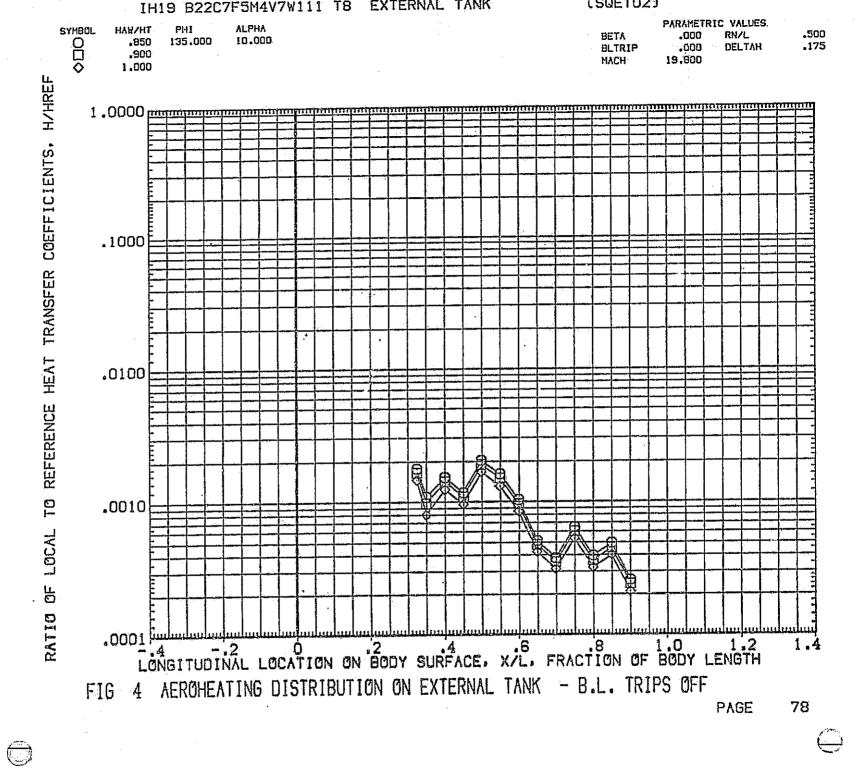
.000 . ALPHA BETA PHI THYNAH DELTAH SYMBOL 000. 008.e1 .850 , 67.500 BLTRIP 000 МАСН .900 1.000 .1000 .0100 .0010 LOCAL LONGITUDINAL LOCATION ON BODY SURFACE, X/L, FRACTION OF BODY LENGTH FIG 4 AEROHEATING DISTRIBUTION ON EXTERNAL TANK - B.L. TRIPS OFF



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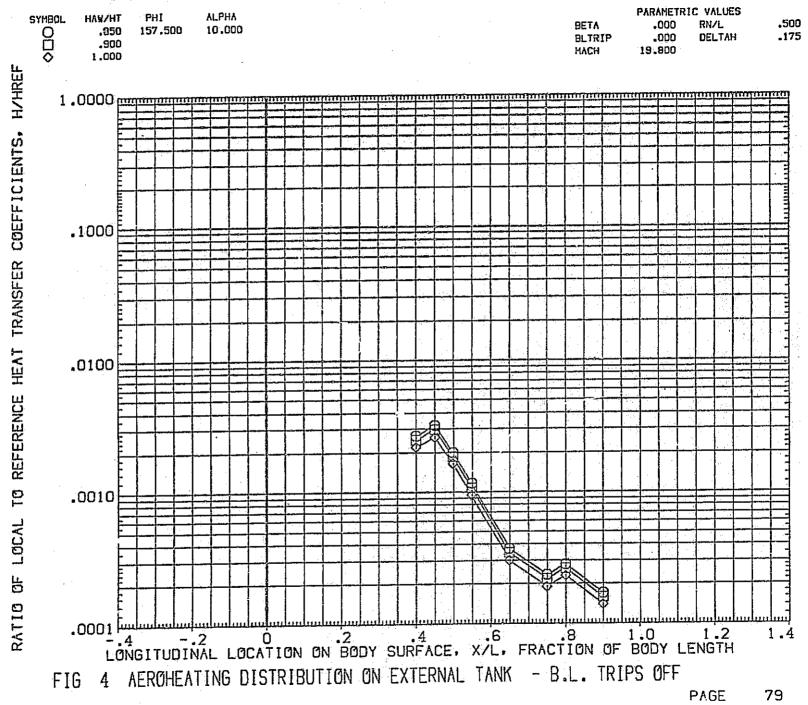
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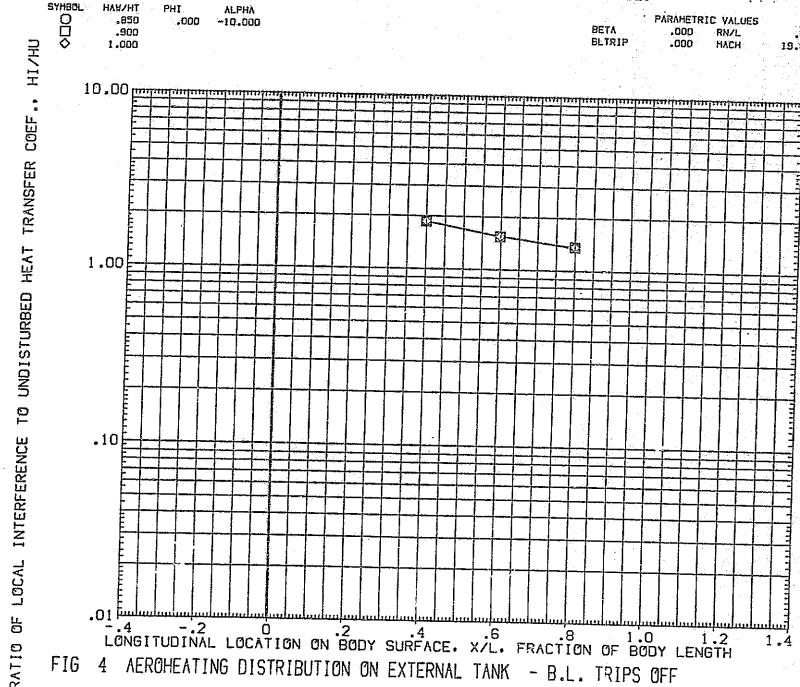
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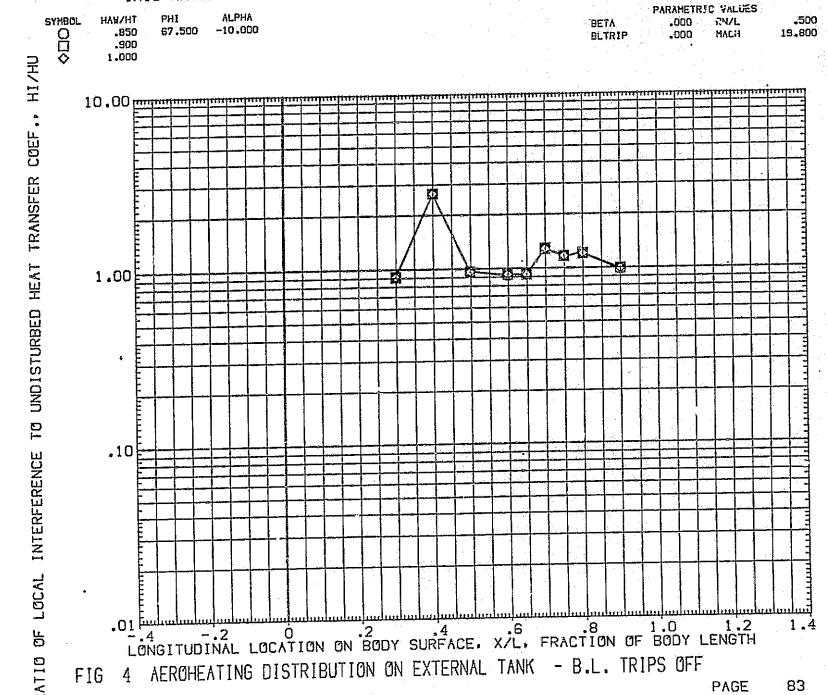


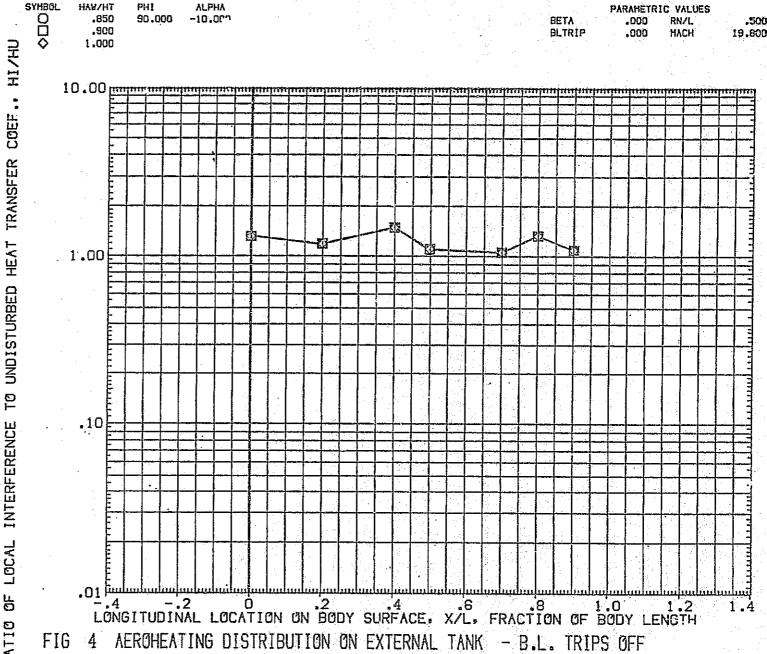
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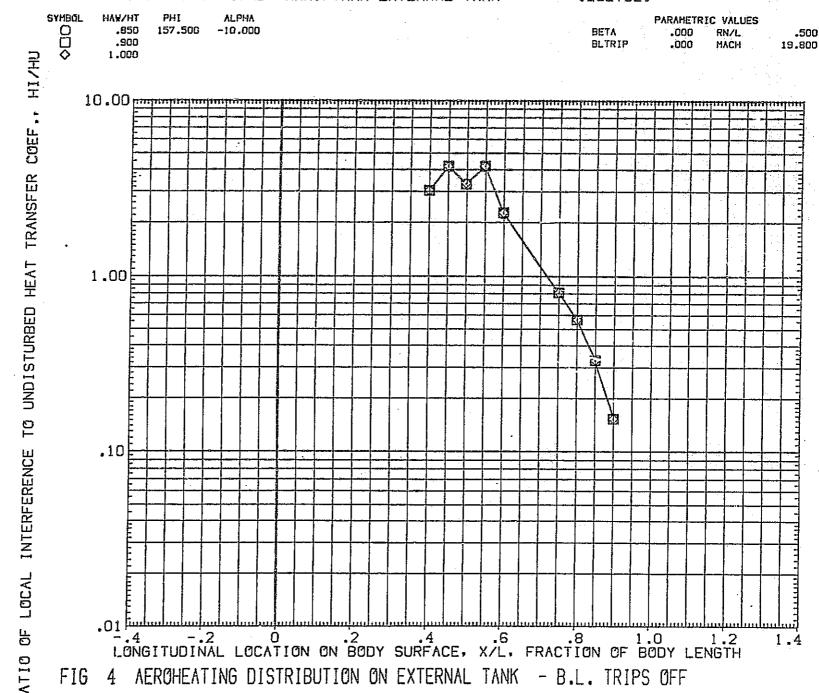
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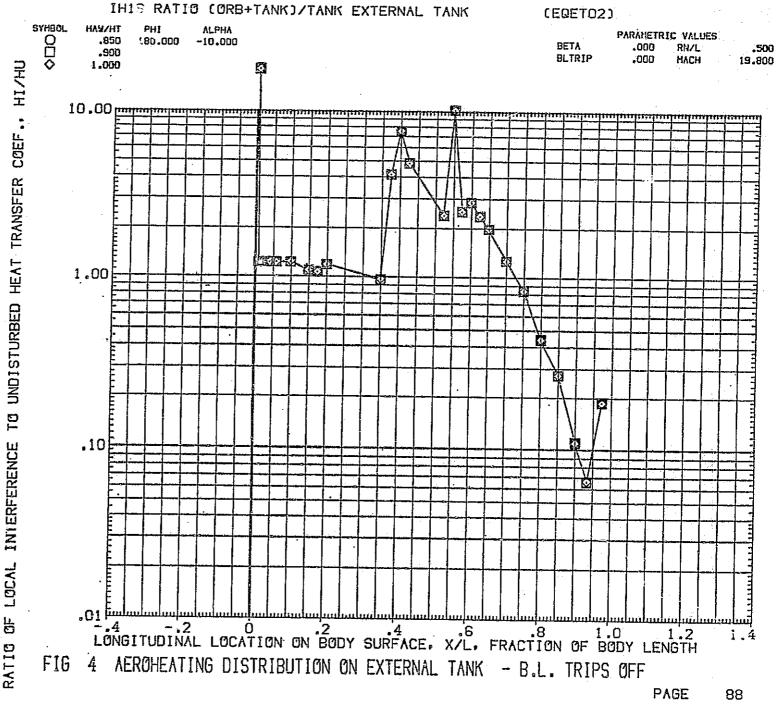
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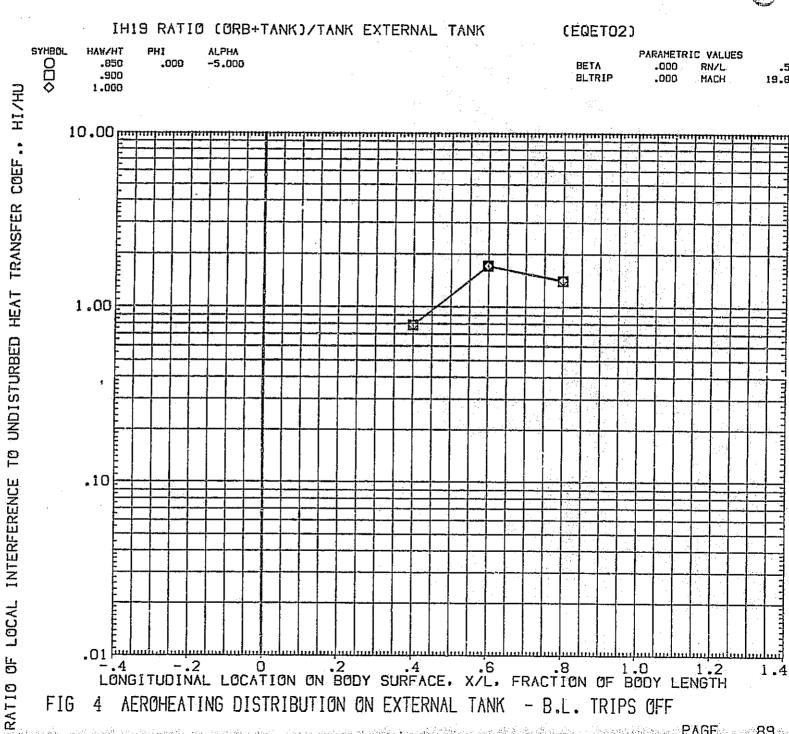


FIG 4 AEROHEATING DISTRIBUTION ON EXTERNAL TANK - B.L. TRIPS OFF

-.4 -.2 0 .2 .4 .6 .8 1.0 1.2 LONGITUDINAL LOCATION ON BODY SURFACE, X/L. FRACTION OF BODY LENGTH FIG 4 AEROHEATING DISTRIBUTION ON EXTERNAL TANK - B.L. TRIPS OFF

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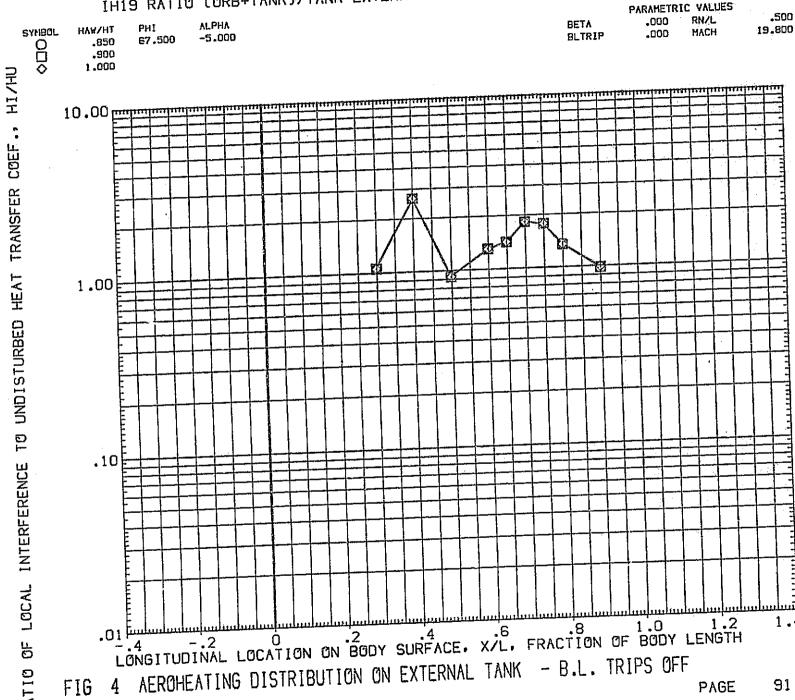


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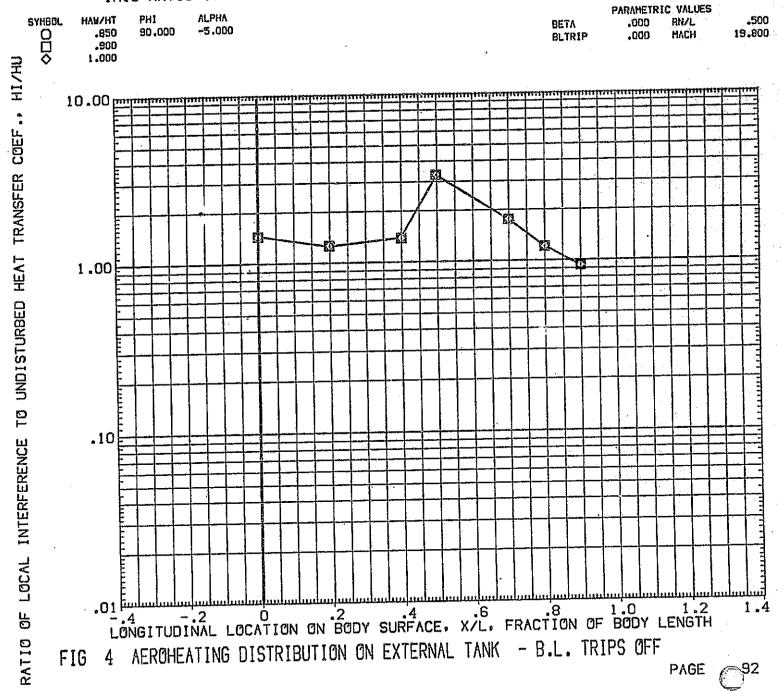
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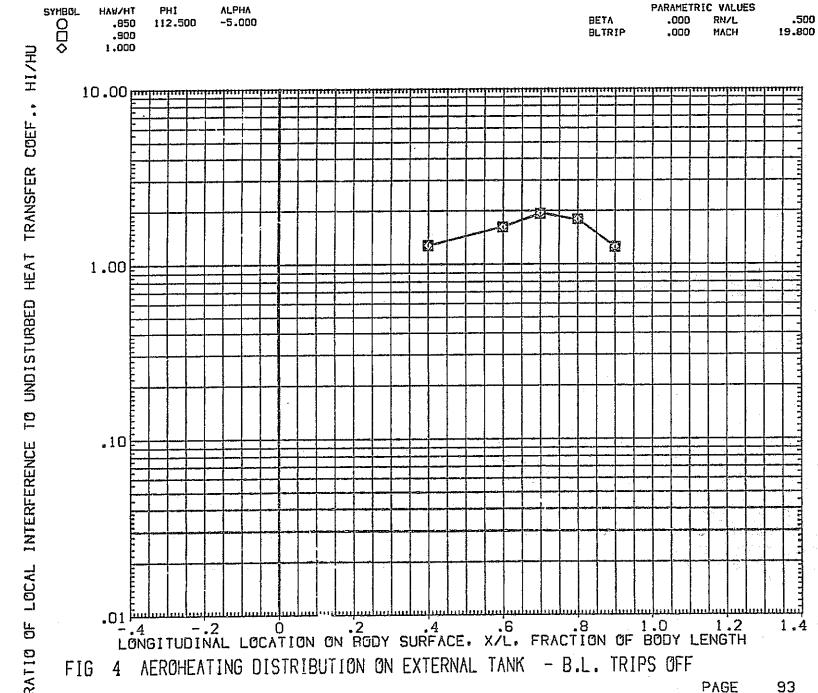
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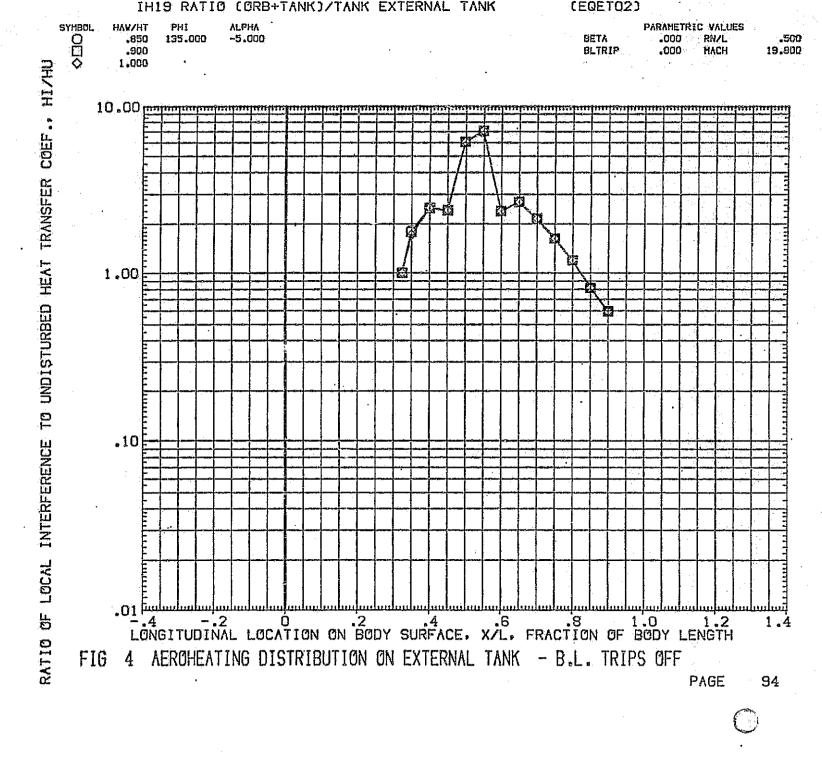


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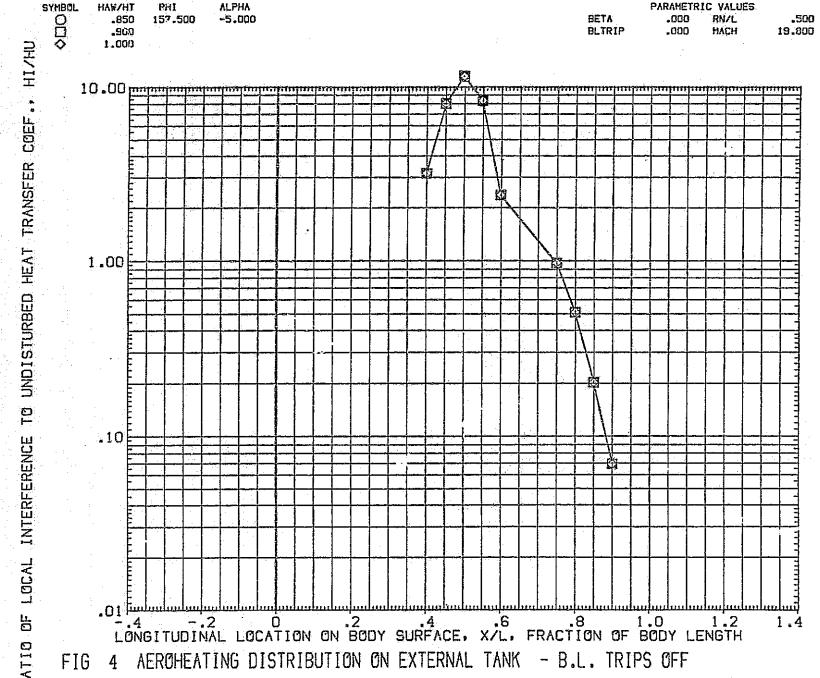








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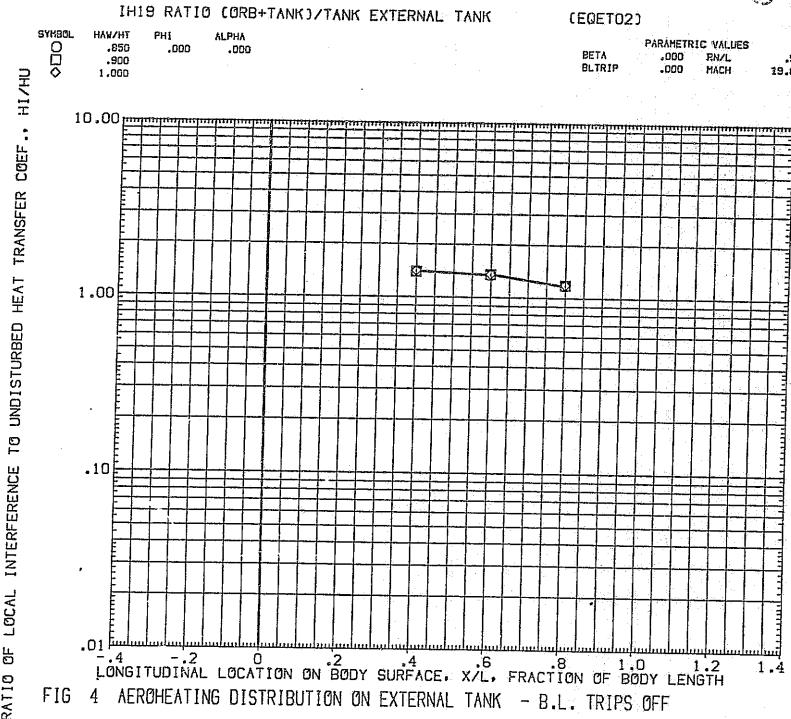
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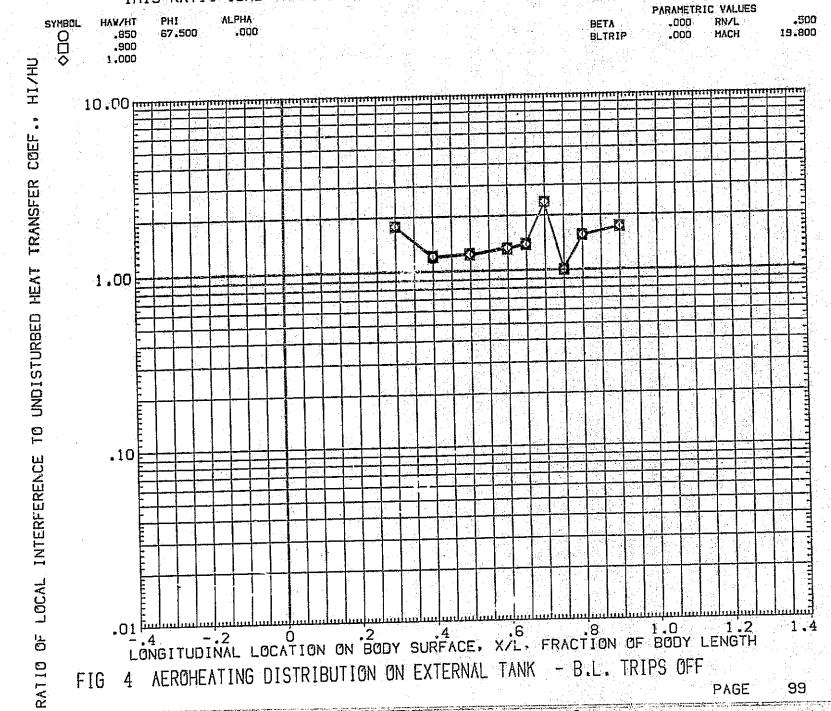


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FIG 4 AEROHEATING DISTRIBUTION ON EXTERNAL TANK - B.L. TRIPS OFF







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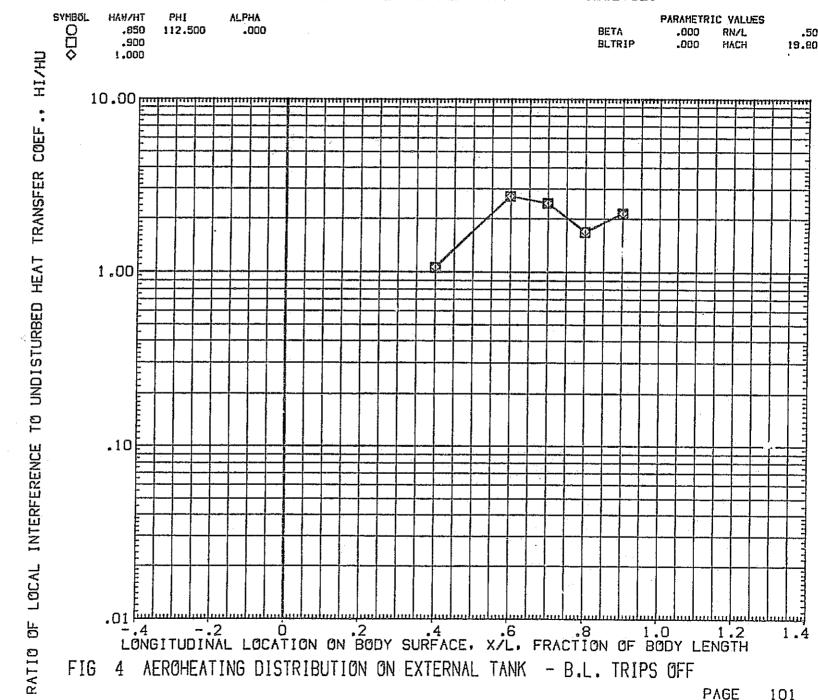


FIG 4 AEROHEATING DISTRIBUTION ON EXTERNAL TANK - B.L. TRIPS OFF

PAGE 102

(EQETO2) IH19 RATIO CORB+TANK)/TANK EXTERNAL TANK PARAMETRIC VALUES RN/L .000 BETA **ALPHA** PHI TH/WAH SYMBOL MACH .000 BLTRIP .000 157.500 .850 000 .900 1.000 HI/HU TRANSFER UNDISTURBED HEAT 1.00 .10F INTERFERENCE 1.0 1.2 -.4 -.2 0 .2 .4 .6 .8 1.0 1.2 LONGITUDINAL LOCATION ON BODY SURFACE, X/L, FRACTION OF BODY LENGTH 면 FIG 4 AEROHEA ING DISTRIBUTION ON EXTERNAL TANK - B.L. TRIPS OFF 103 PAGE

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FIG 4 AEROHEATING DISTRIBUTION ON EXTERNAL TANK - B.L. TRIPS OFF

LONGITUDINAL LOCATION ON BODY SURFACE, X/L, FRACTION OF BODY LENGTH

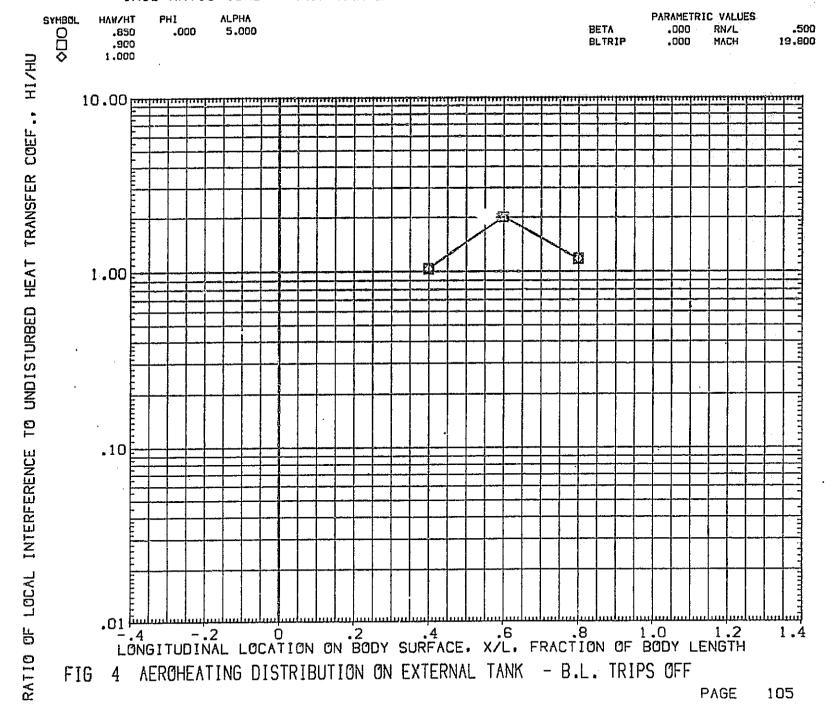
PAGE 104





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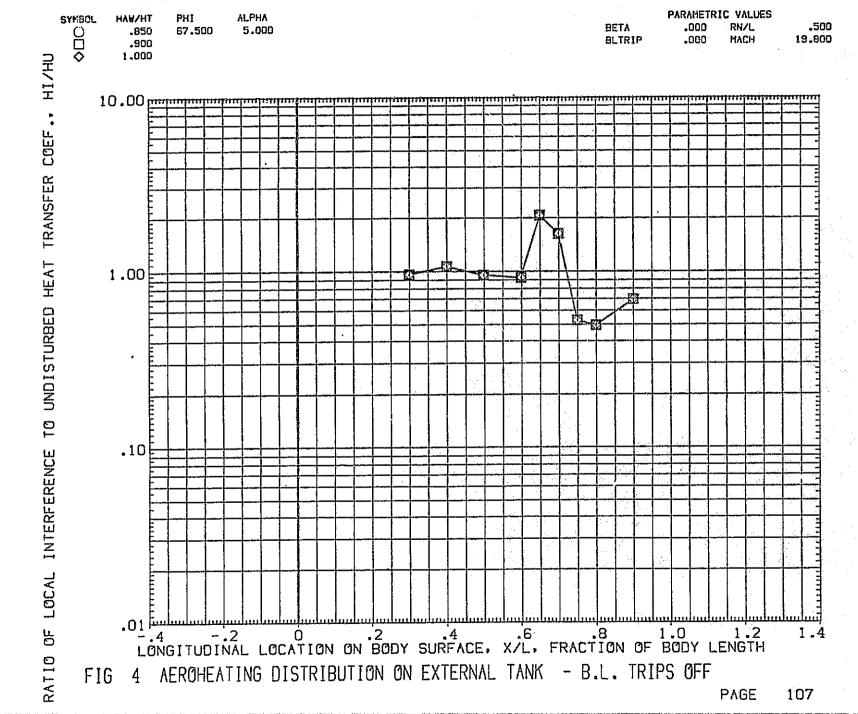


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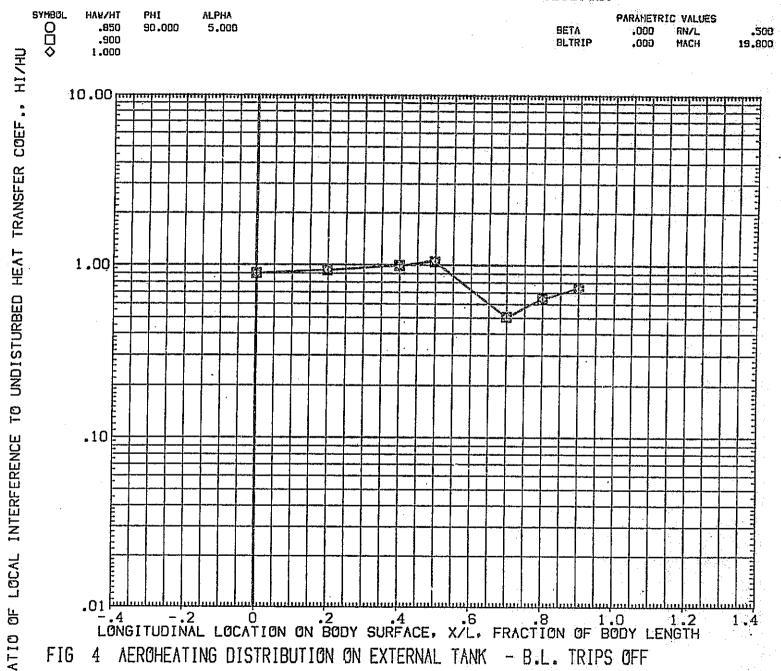


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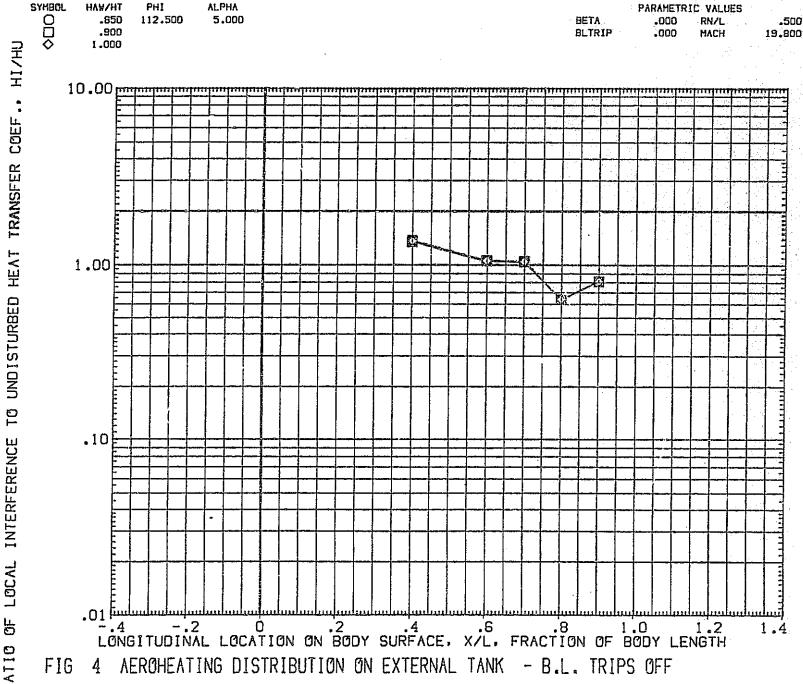


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IH19 RATIO (ORB+TANK)/TANK EXTERNAL TANK

(EQETO2)



IH19 RATIO (ORB+TANK)/TANK EXTERNAL TANK

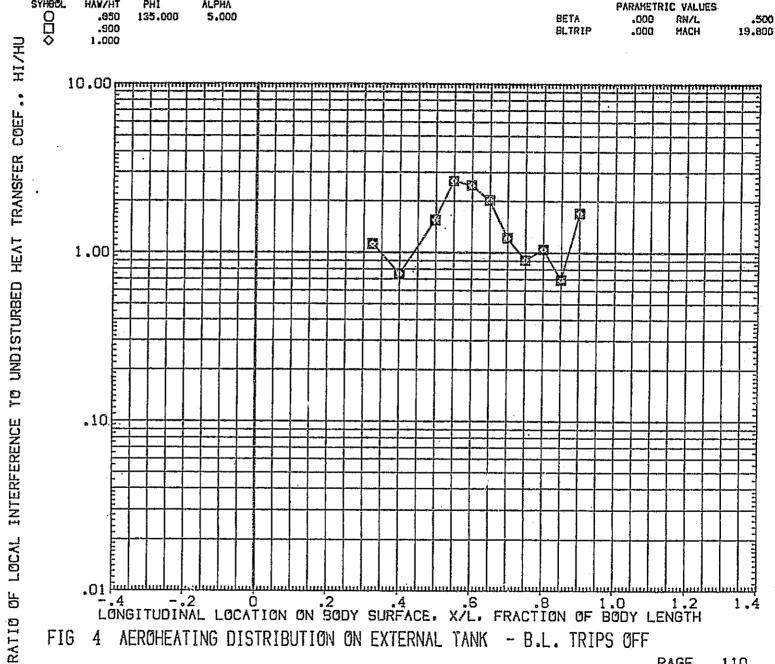
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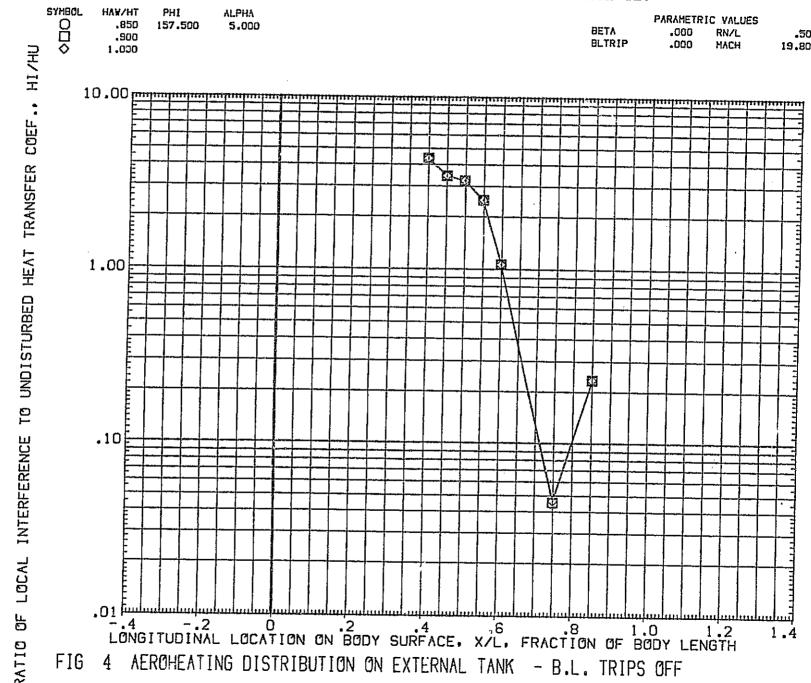
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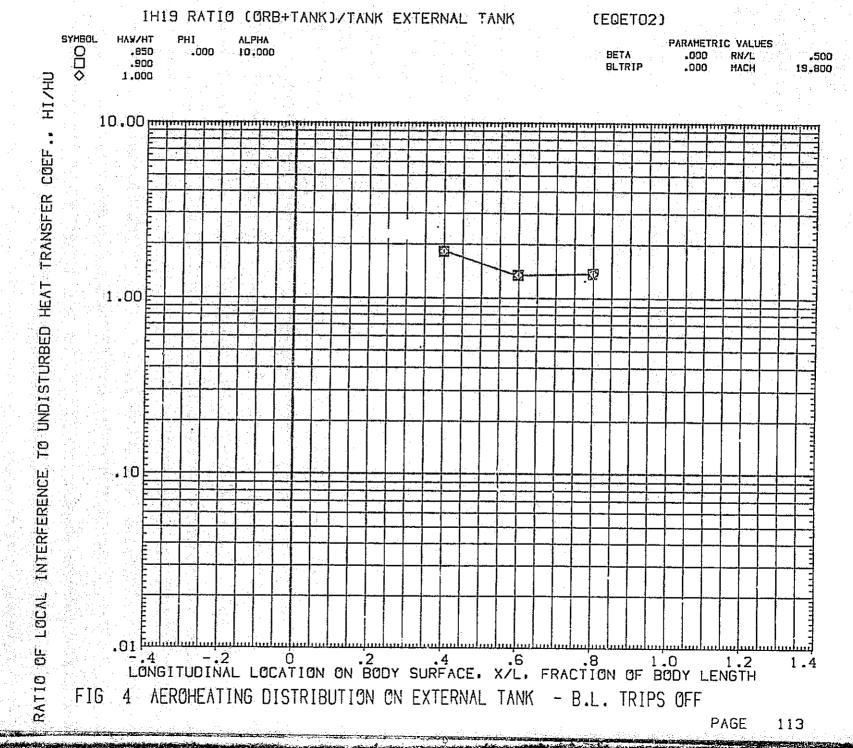
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IH19 RATIO (ORB+TANK)/TANK EXTERNAL TANK (EQETO2) SYMBOL HAW/HT PHI **ALPHA** PARAMETRIC VALUES 8 .850 45.000 10,000 BETA .000 RN/L .900 BLTRIP .000 MACH 19.600 1.000 10.00 programinary COEF. TRANSFER TO UNDISTURBED HEAT 1.00

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FIG 4 AEROHEATING DISTRIBUTION ON EXTERNAL TANK - B.L. TRIPS OFF

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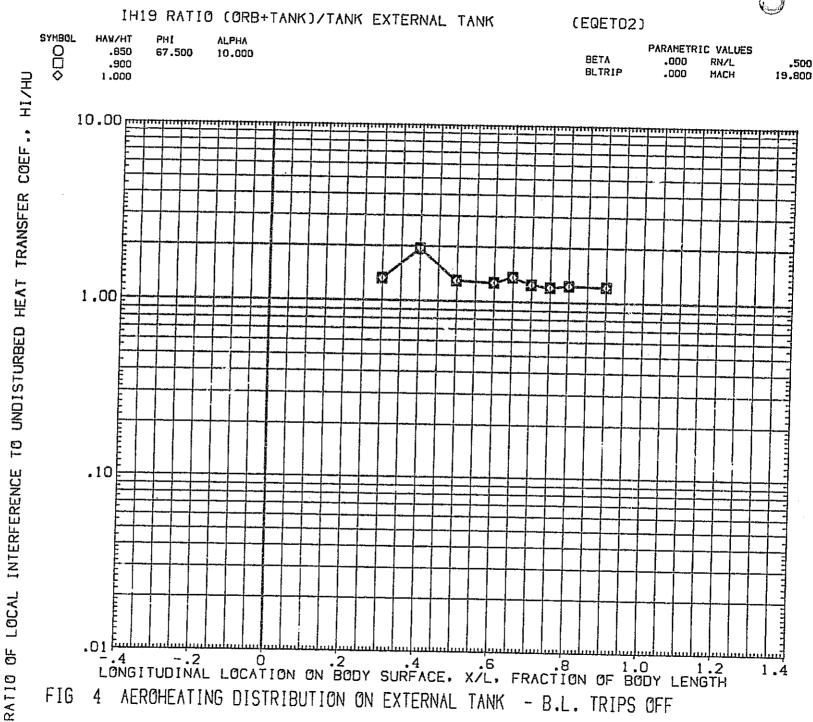
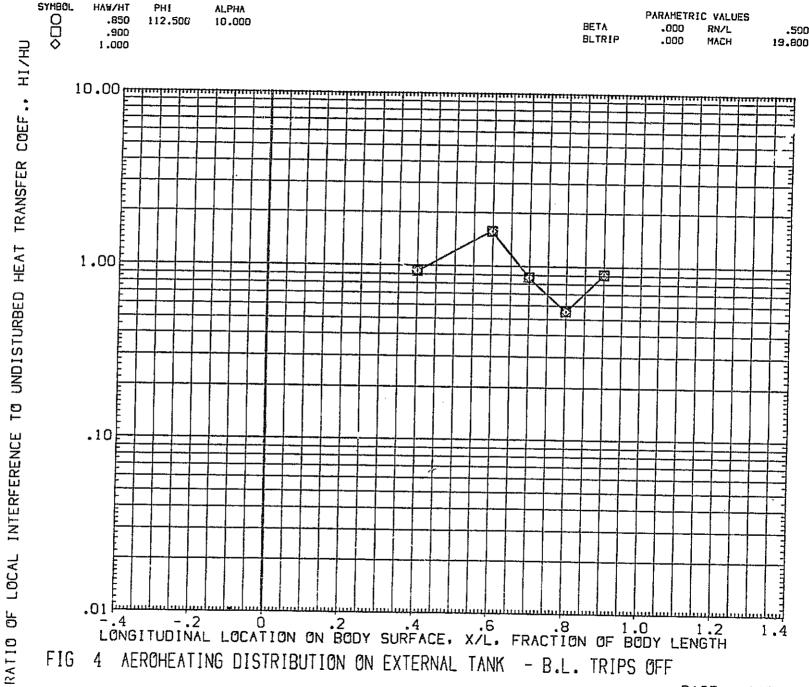


FIG 4 AEROHEATING DISTRIBUTION ON EXTERNAL TANK - B.L. TRIPS OFF PAGE



1419 RATIO (ORB+TANK)/TANK EXTERNAL TANK

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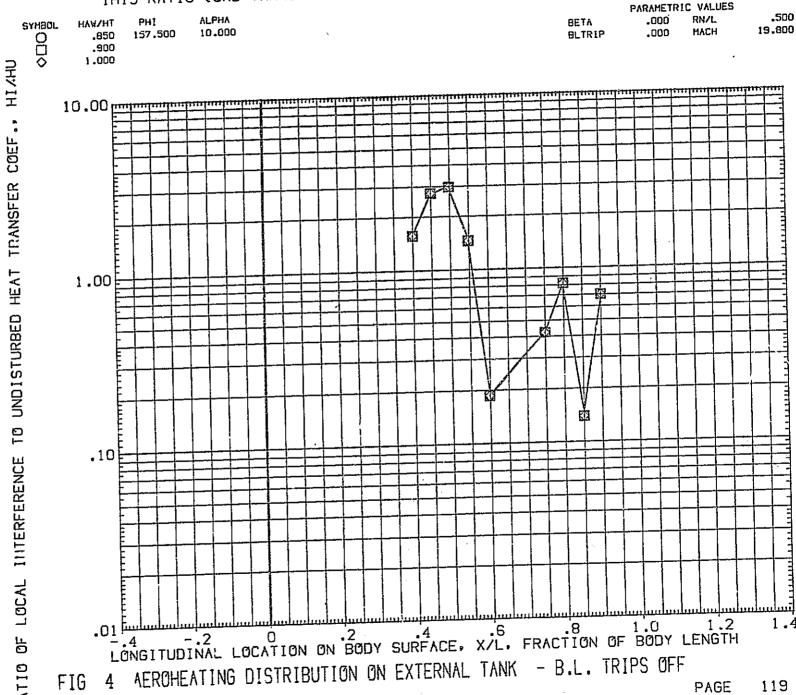


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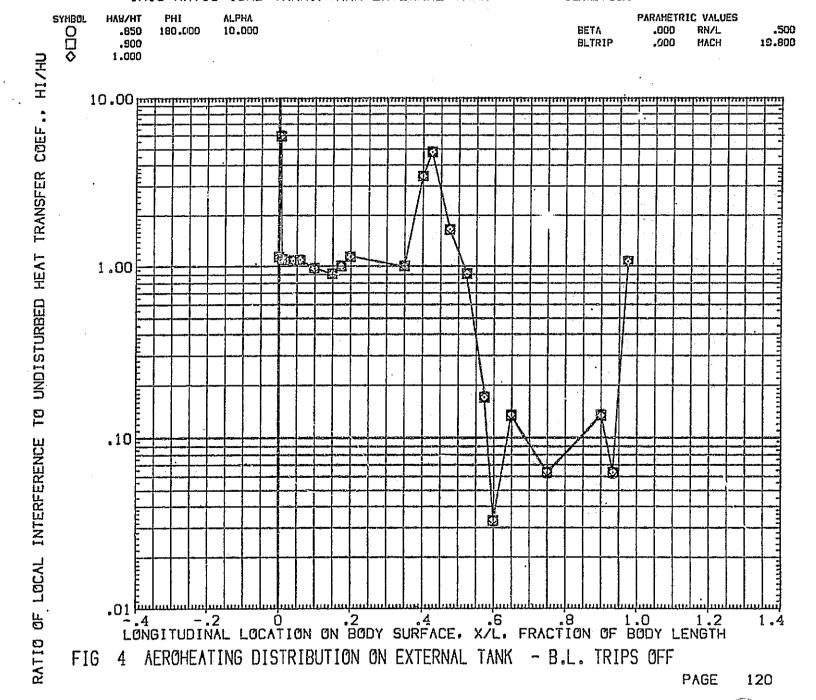


IH19 RATIO (ORB+TANK)/TANK EXTERNAL TANK

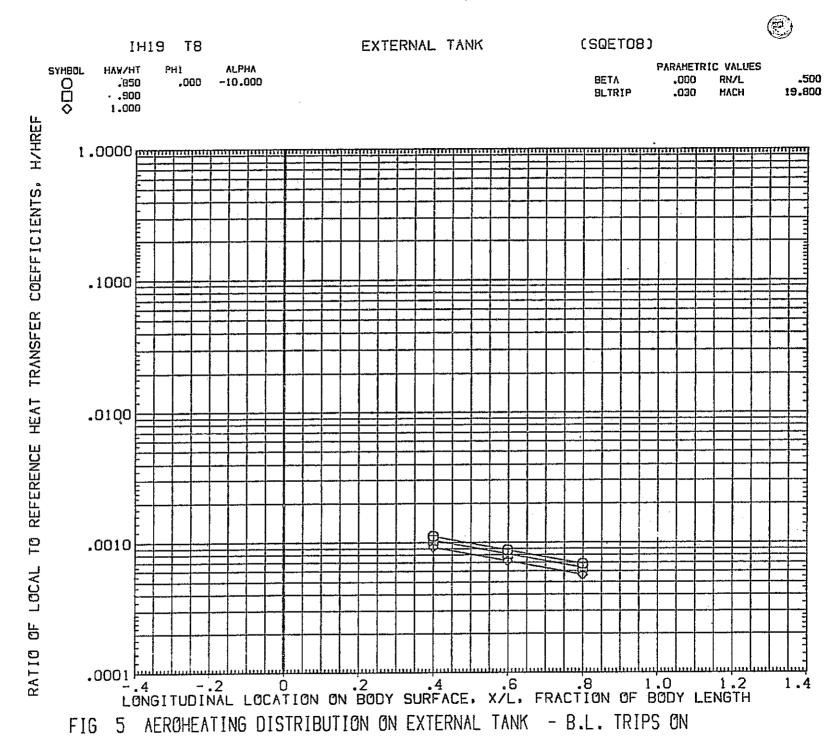
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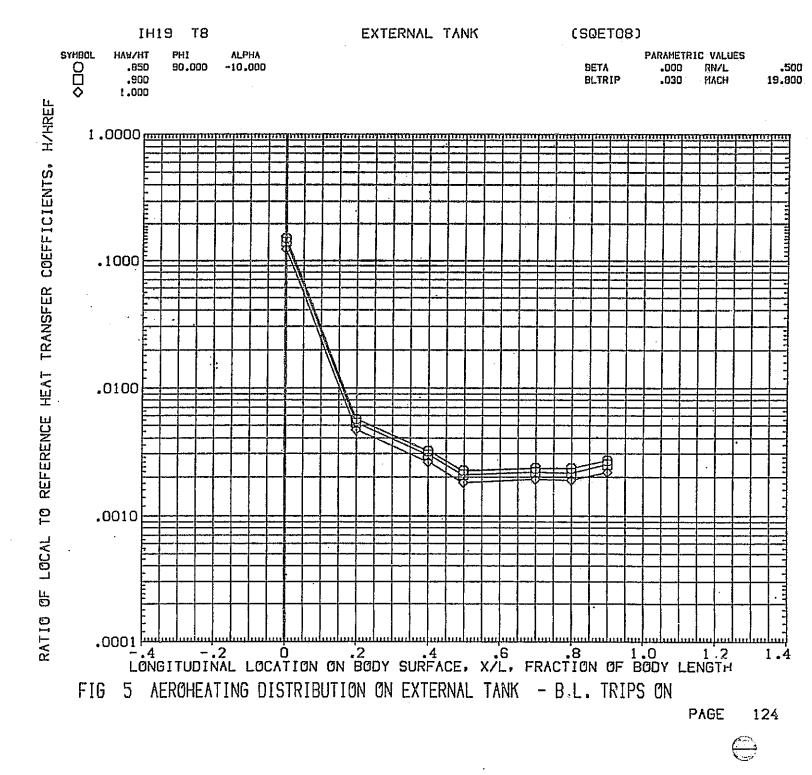




(SQETO8) IH19 T8 EXTERNAL TANK SYMBOL TH\WAH ALPHA PARAMETRIC VALUES 000 .850 .900 67.500 -10.000 BETA RN/L BLTRIP 19.800 .030 MACH 1.000 H/HREF 1,0000 mmmmm COEFFICIENTS, .1000 HEAT TRANSFER .0100 REFERENCE .0010 LOCAL 뭐

FIG 5 AEROHEATING DISTRIBUTION ON EXTERNAL TANK - B.L. TRIPS ON

-.4 -.2 0 .2 .4 .6 .8 1.0 1.2 LONGITUDINAL LOCATION ON BODY SURFACE, X/L, FRACTION OF BODY LENGTH



(SQETO8) EXTERNAL TANK IH19 T8 PARAMETRIC VALUES ALPHA SYMBOL THYEAH PHI .500 .000 RN/L BETA .850 112.500 -10,000 000 19.800 BLTRIP .030 MACH .900 1.000 COEFFICIENTS,

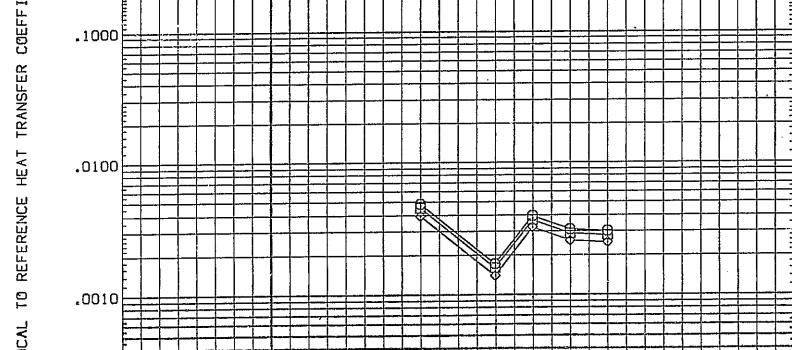
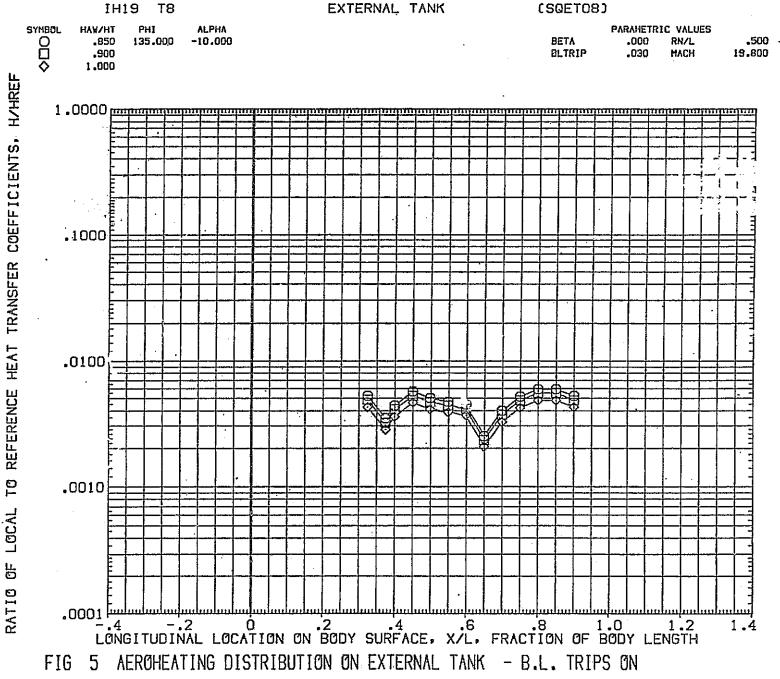


FIG 5 AEROHEATING DISTRIBUTION ON EXTERNAL TANK - B.L. TRIPS ON

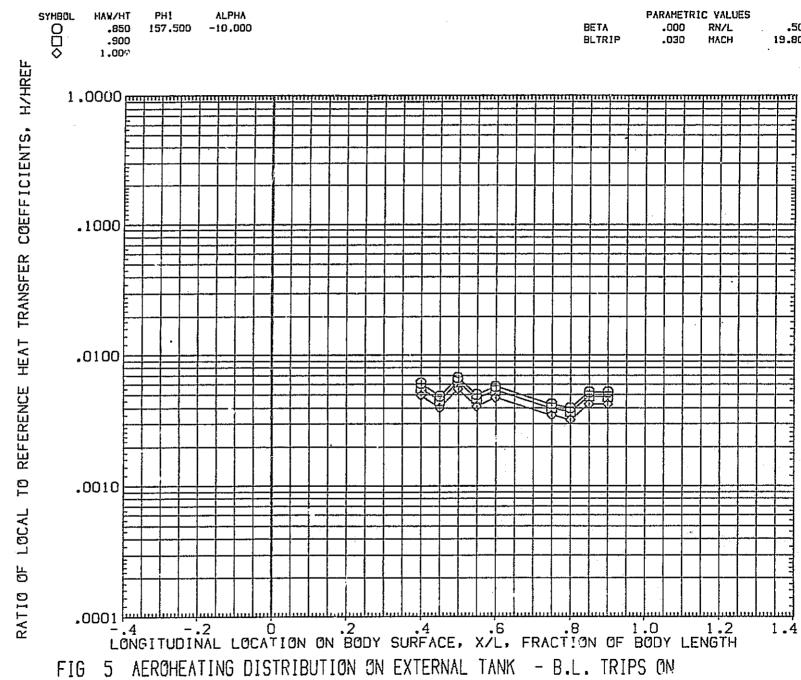
LONGITUDINAL LOCATION ON BODY SURFACE, X/L, FRACTION OF BODY LENGTH

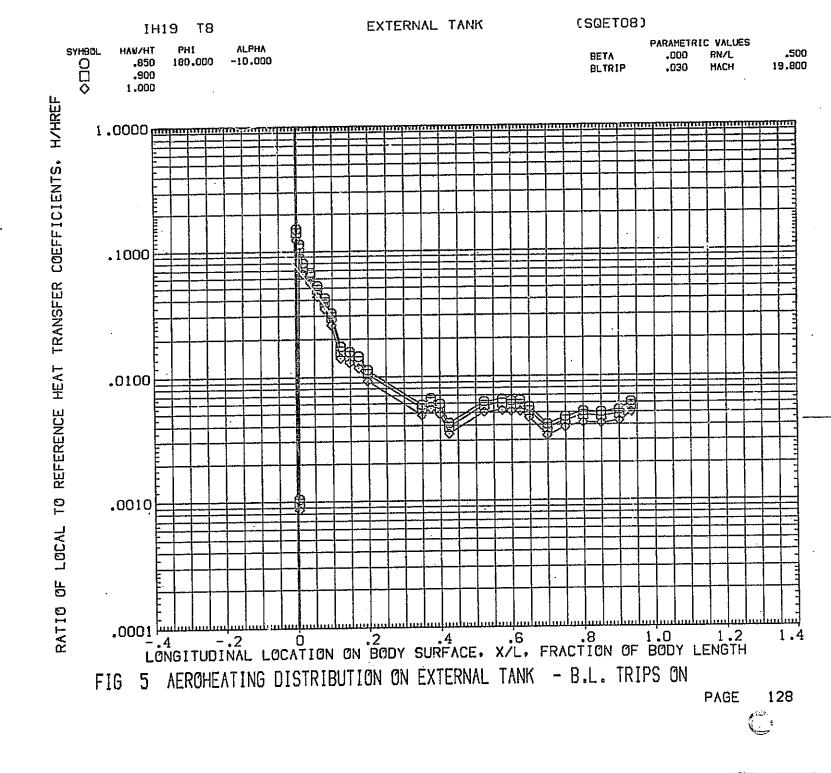


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EXTERNAL TANK

(SQETO8)

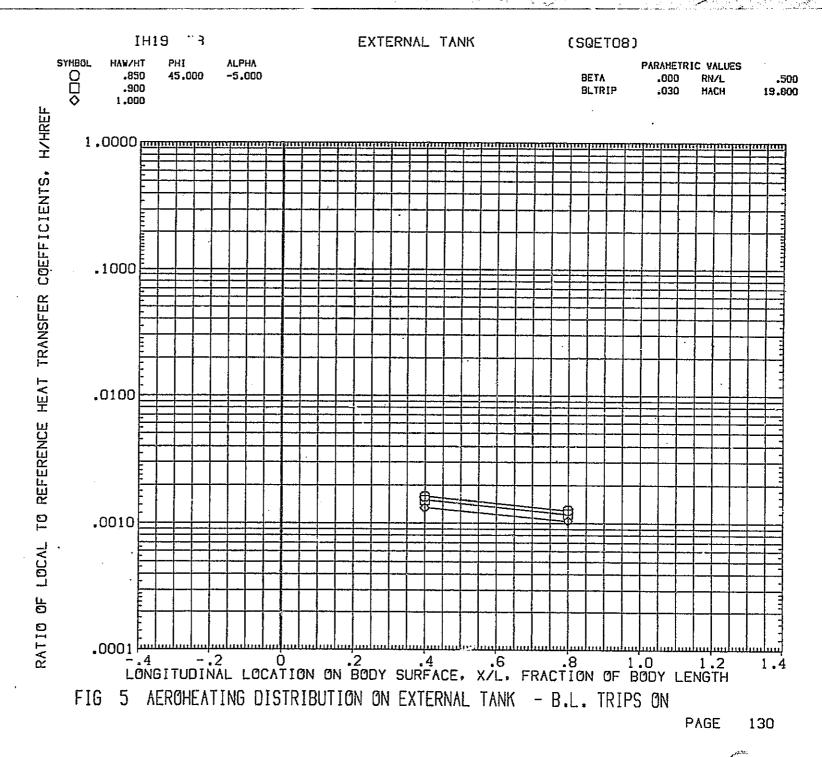




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(SQETO8) EXTERNAL TANK IH19 T8 PARAMETRIC VALUES **ALPHA** PHI SYMBOL HAW/HT .500 .000 RNZL BETA -5.000 000 .850 .000 MACH 19.600 .030 BLTRIP .900 1.000 H/HREF 1.0000 mmmmm COEFFICIENTS, .1000 TRANSFER HEAT .0100 REFERENCE ΤØ .0010 LOCAL QF. RATIO سا 1000. 1.0 .8 .6 0 LONGITUDINAL LOCATION ON BODY SURFACE, X/L, FRACTION OF BODY LENGTH FIG 5 AEROHEATING DISTRIBUTION ON EXTERNAL TANK - B.L. TRIPS ON

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(SQETO8) IH19 T8 EXTERNAL TANK PARAMETRIC VALUES SYMBOL. HVANKI PHI **ALPHA** 000 -5,000 BETA RN/L ,500 .850 67.500 BLTRIP HACH 19.800 .900 .030 1.000

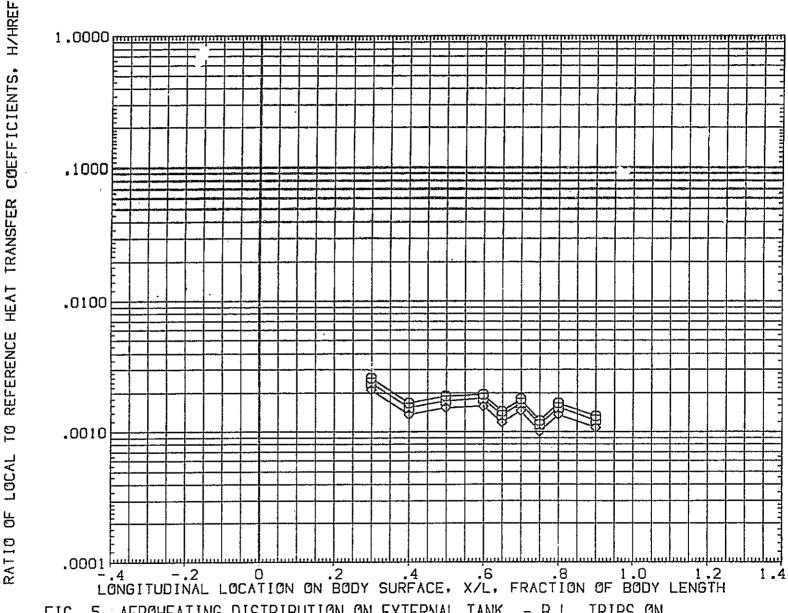
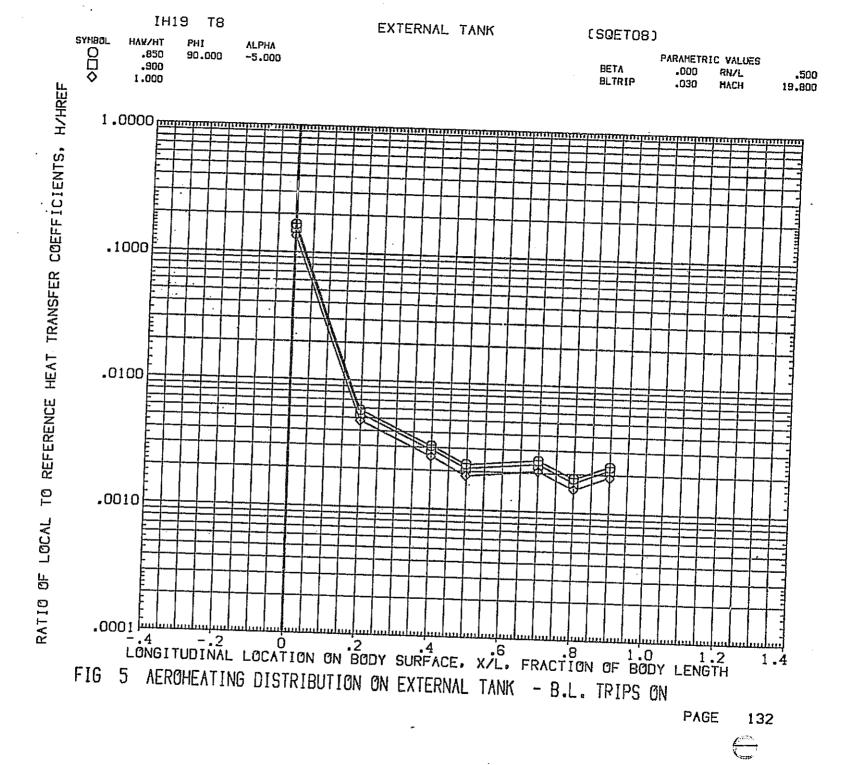


FIG 5 AEROHEATING DISTRIBUTION ON EXTERNAL TANK - B.L. TRIPS ON





EXTERNAL TANK

ALPHA SYMBOL THYMAH PHI 0□0 .850 -5.000 112.500 .900

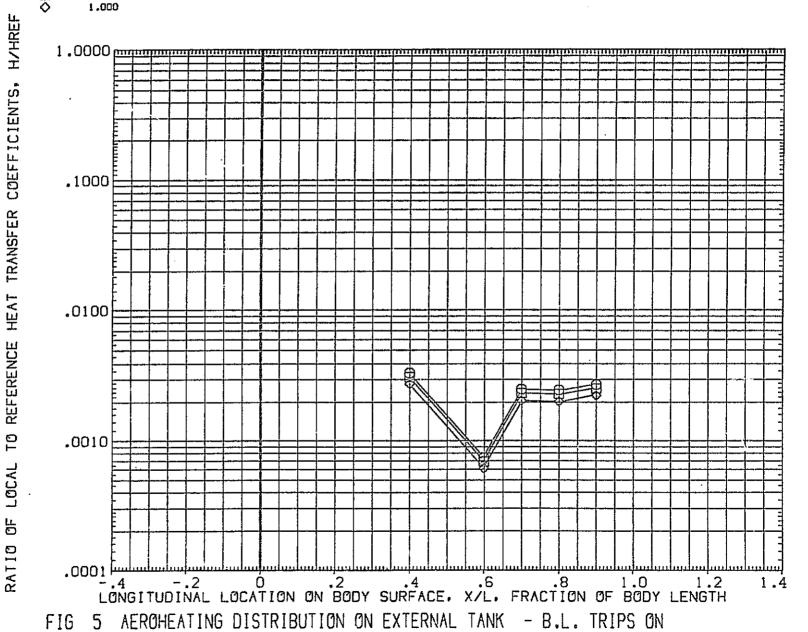
IH19 T8

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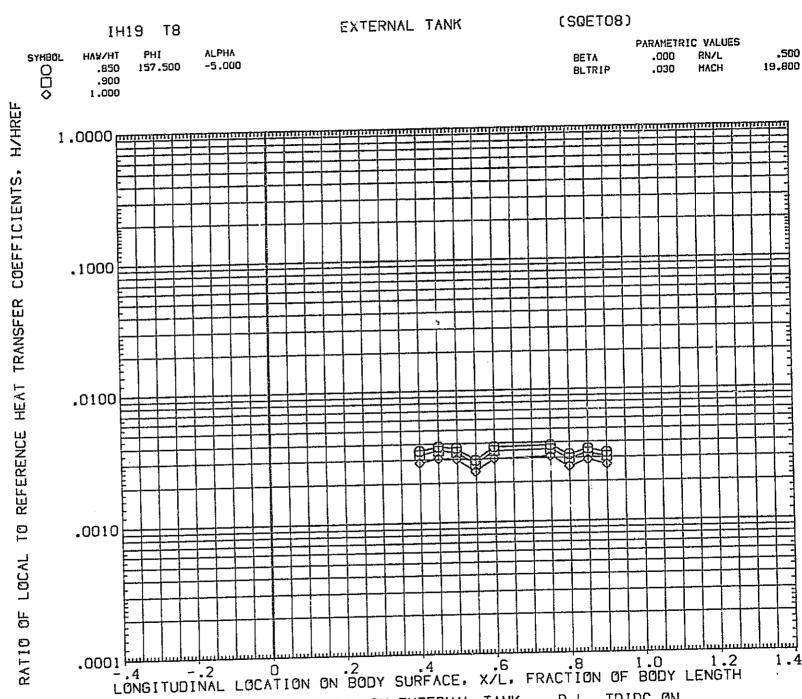


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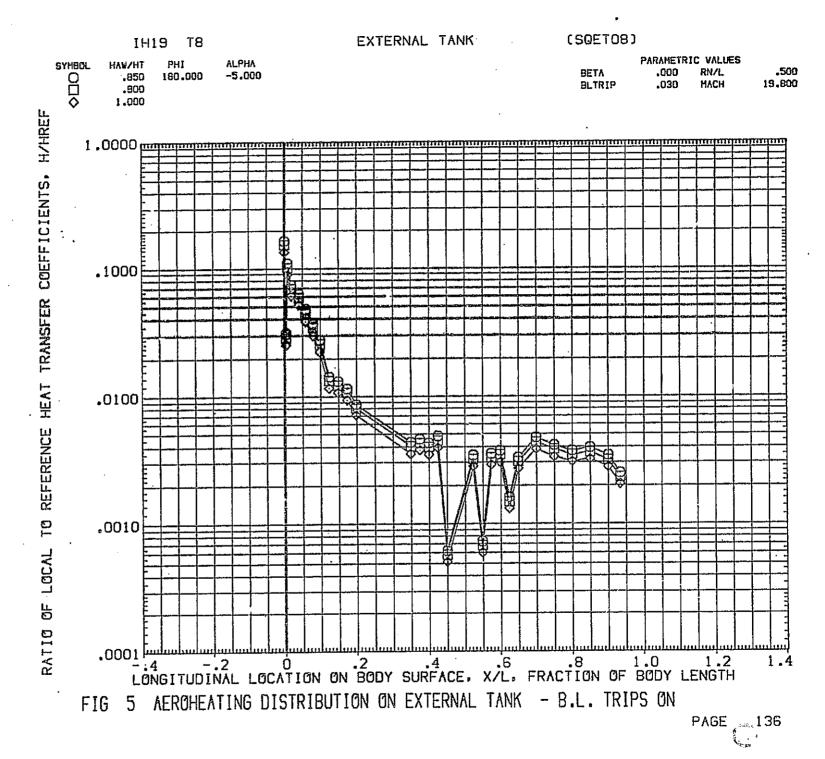
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5 AEROHEATING DISTRIBUTION ON EXTERNAL TANK - B.L. TRIPS ON PAGE



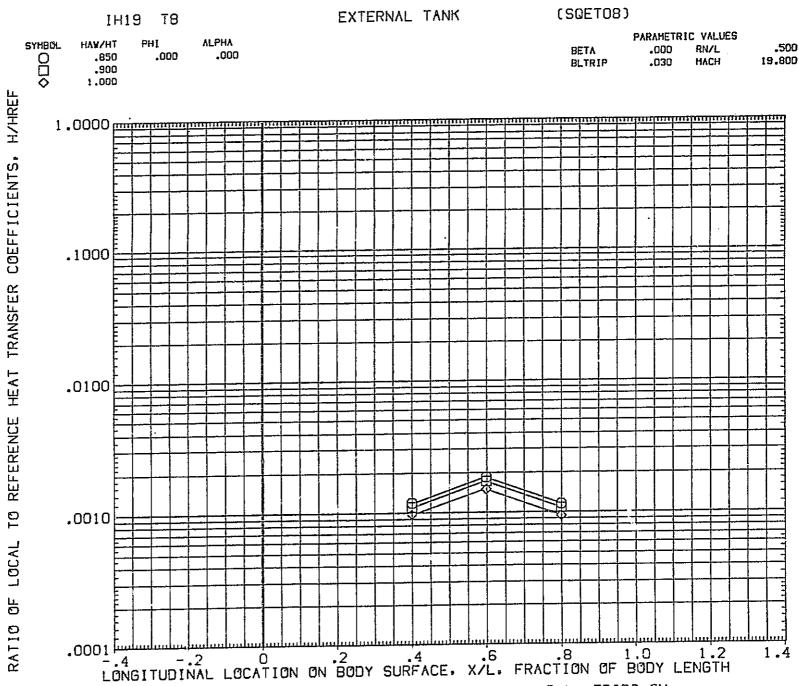
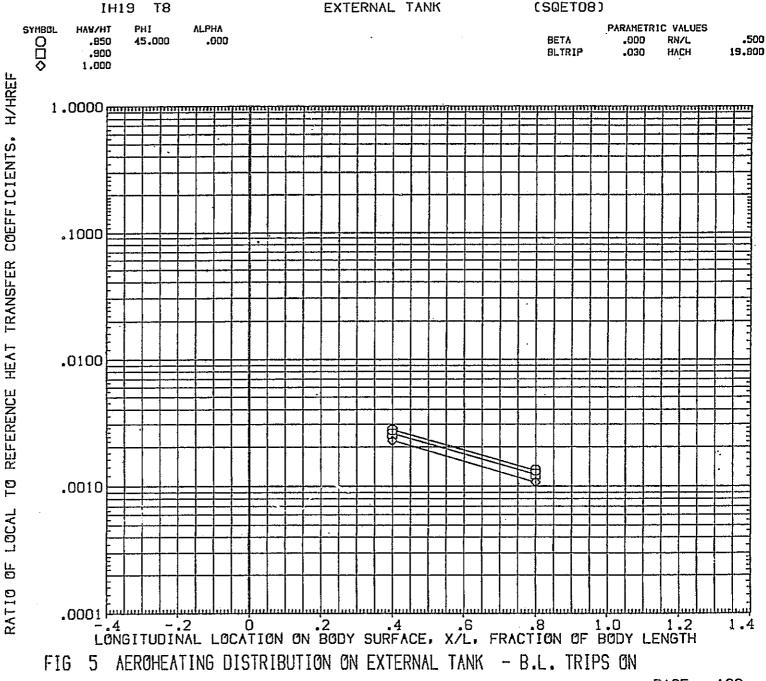
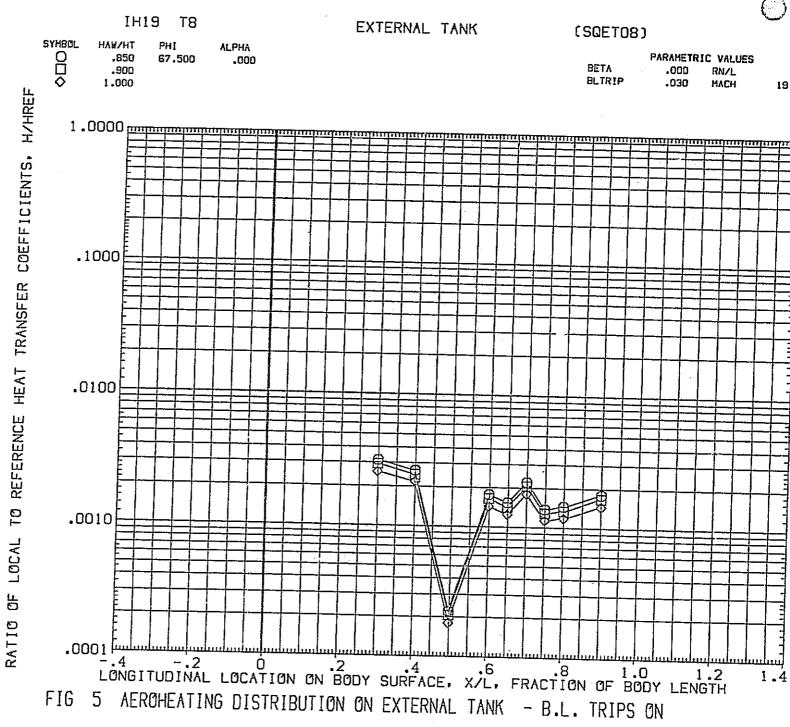
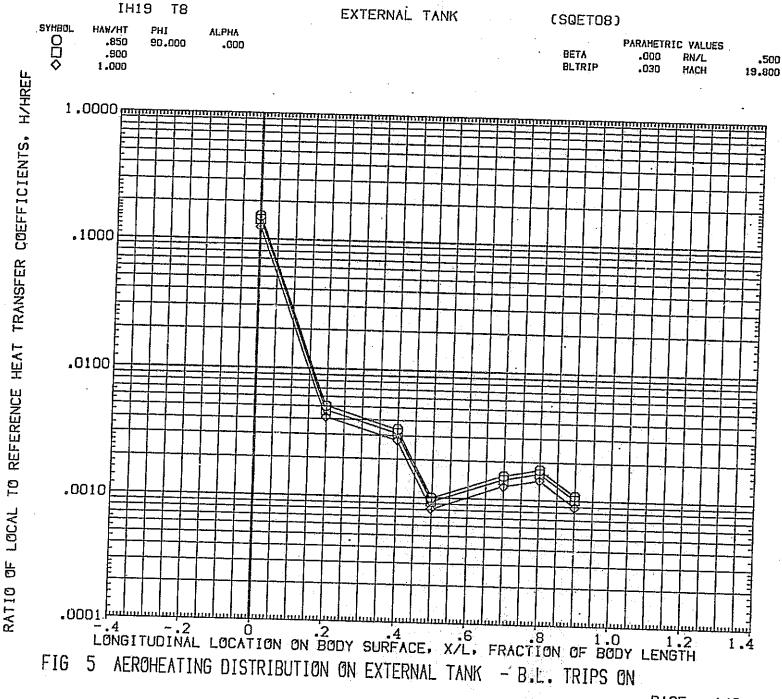


FIG 5 AEROHEATING DISTRIBUTION ON EXTERNAL TANK - B.L. TRIPS ON



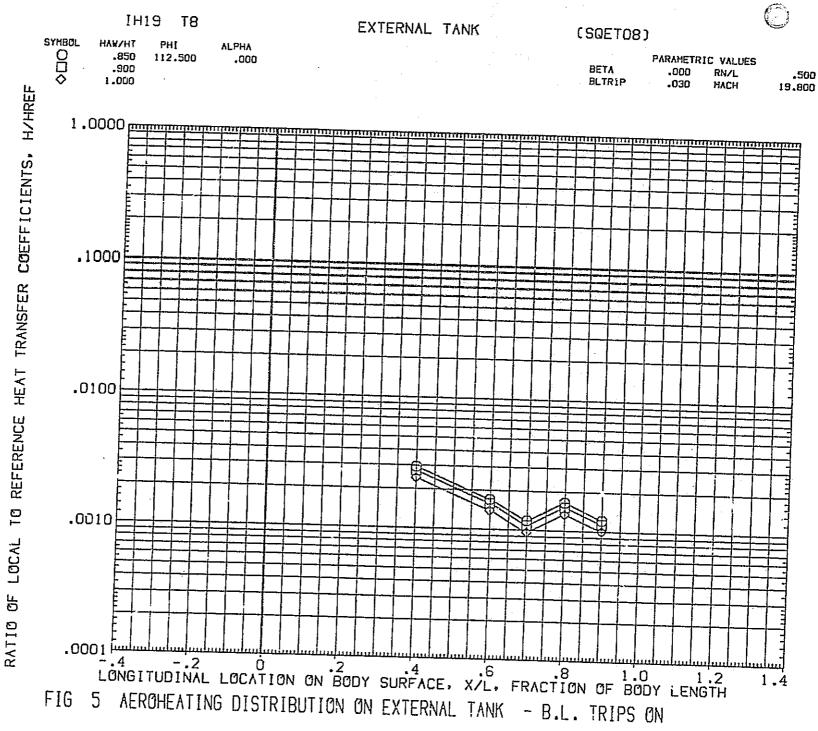
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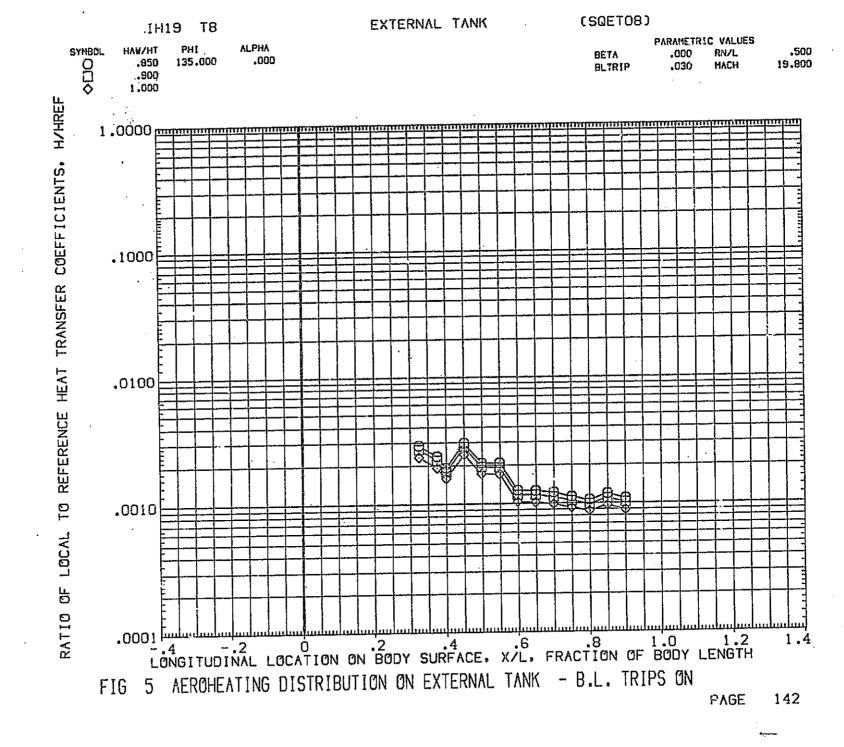




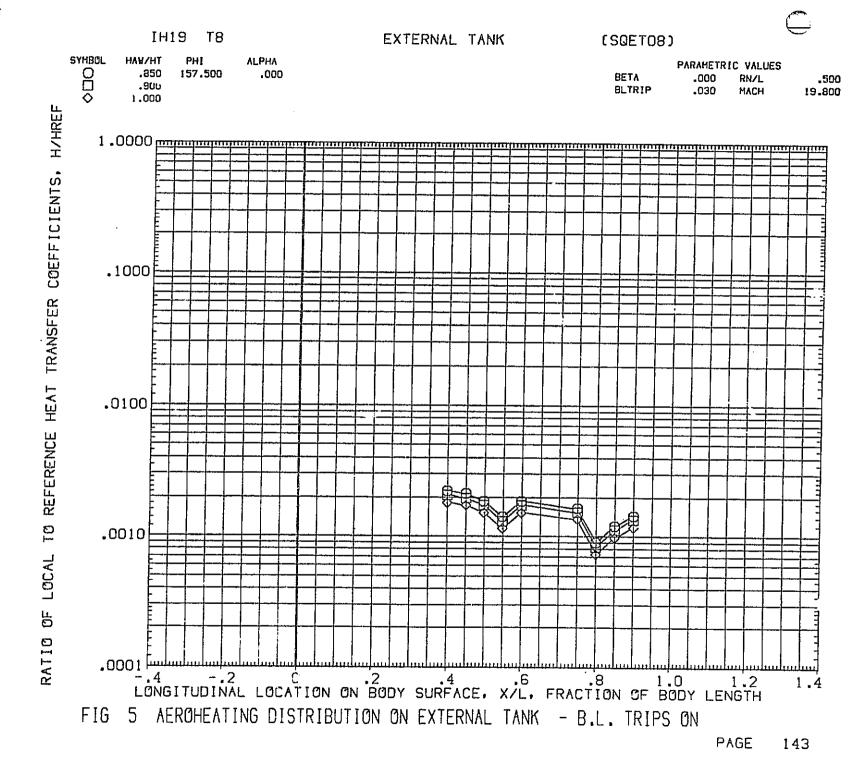


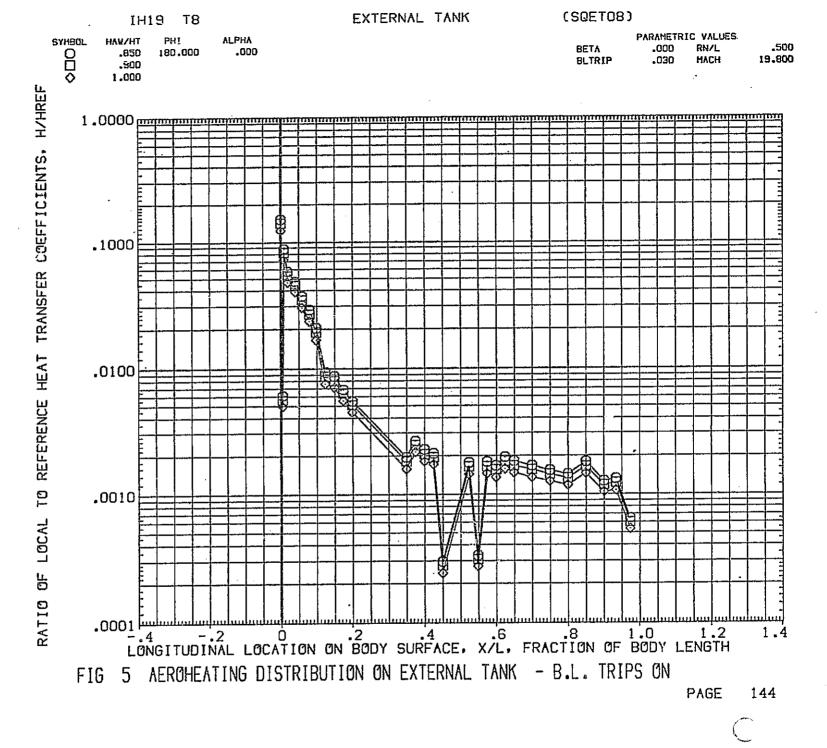




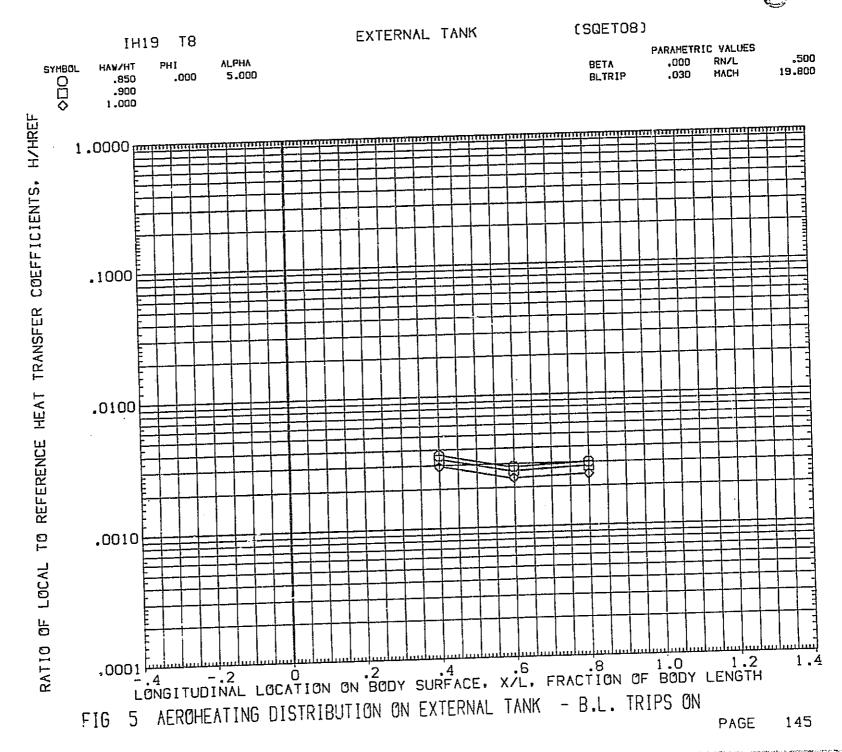


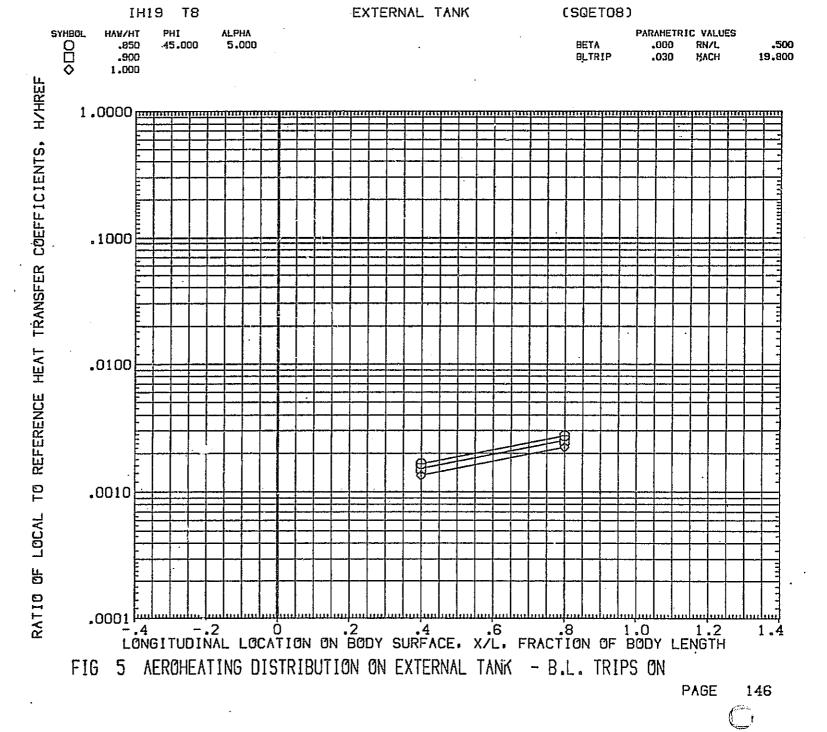
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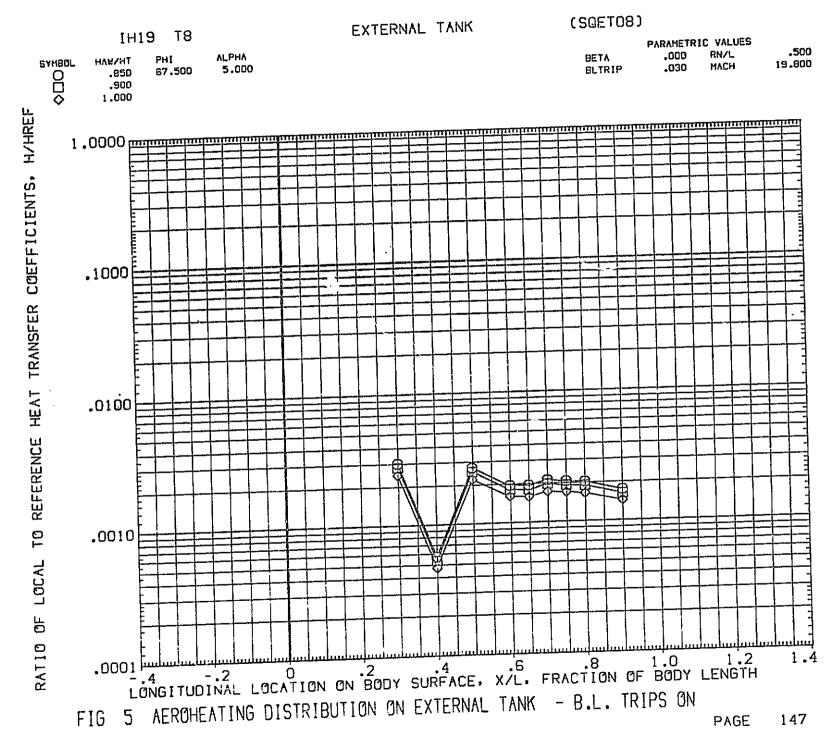


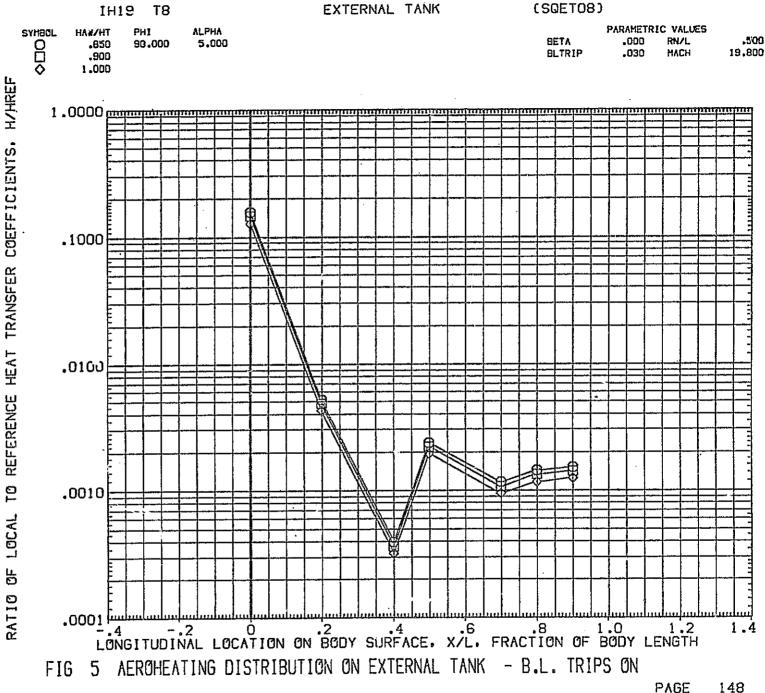












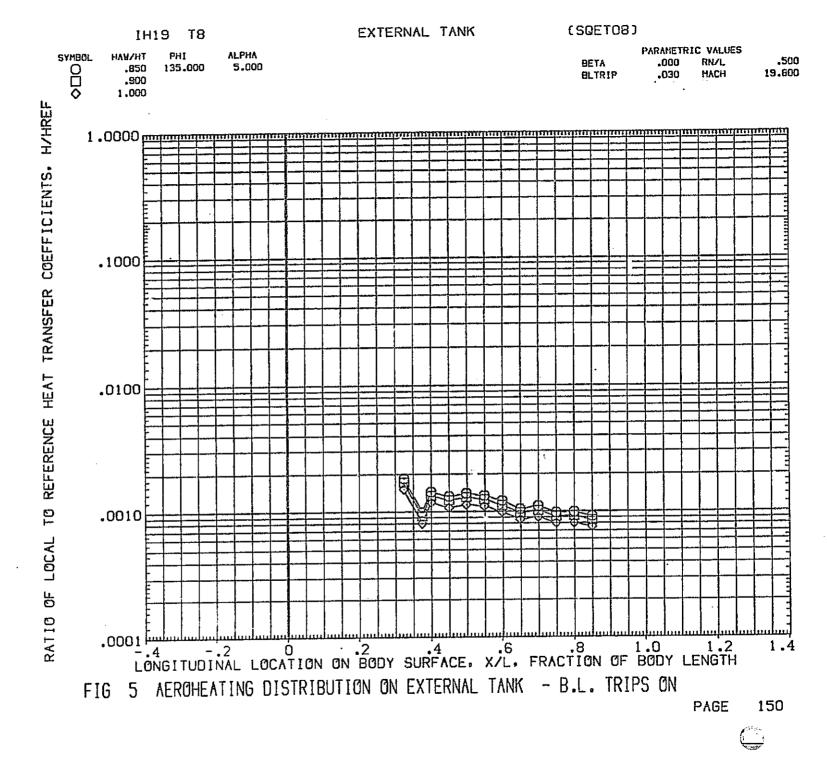


IH19 T8

EXTERNAL TANK (SQETO8) SYMBOL . HAW/HT PHI ALPHA PARAMETRIC VALUES .850 112.500 5.000 .000 RNZL BETA .900 BLTRIP .030 MACH 19,800 1.000 H/HREF COEFFICIENTS, .1000 TRANSFER .01001 REFERENCE 0 .0010 LOCAL OF. RATIO ·0001 h -.4 -.2 0 .2 .4 .6 .8 1.0 1.2 LONGITUDINAL LOCATION ON BODY SURFACE, X/L, FRACTION OF BODY LENGTH FIG 5 AEROHEATING DISTRIBUTION ON EXTERNAL TANK - B.L. TRIPS ON

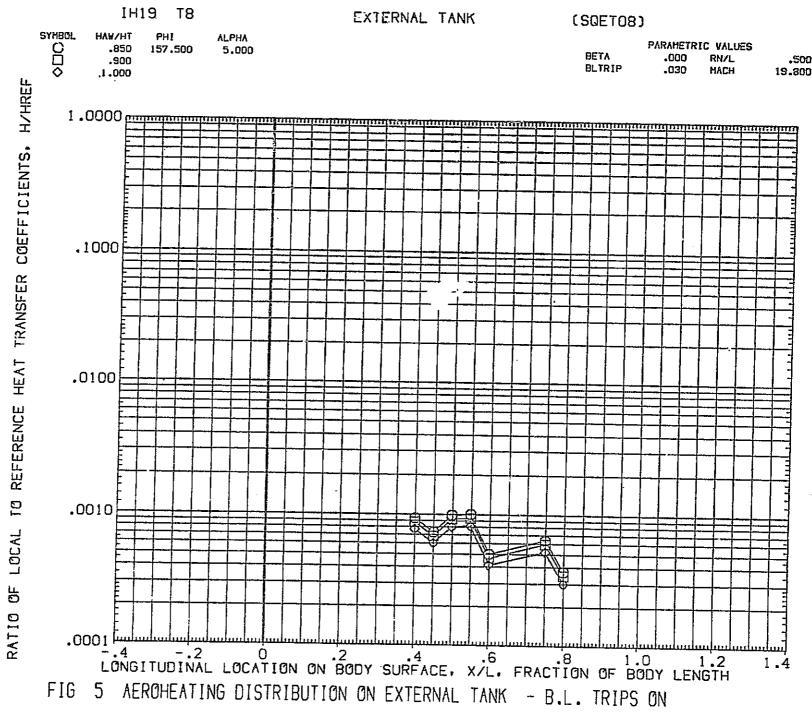
PAGE

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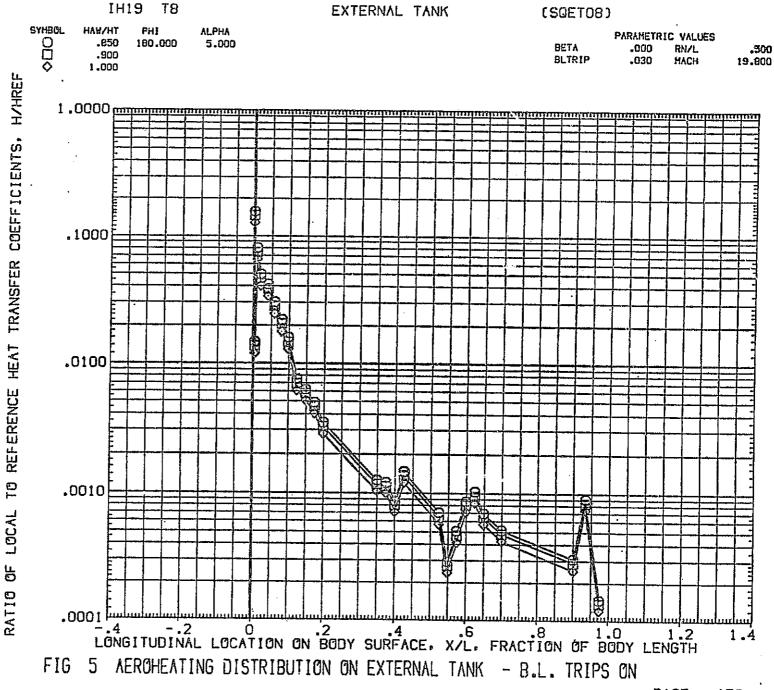








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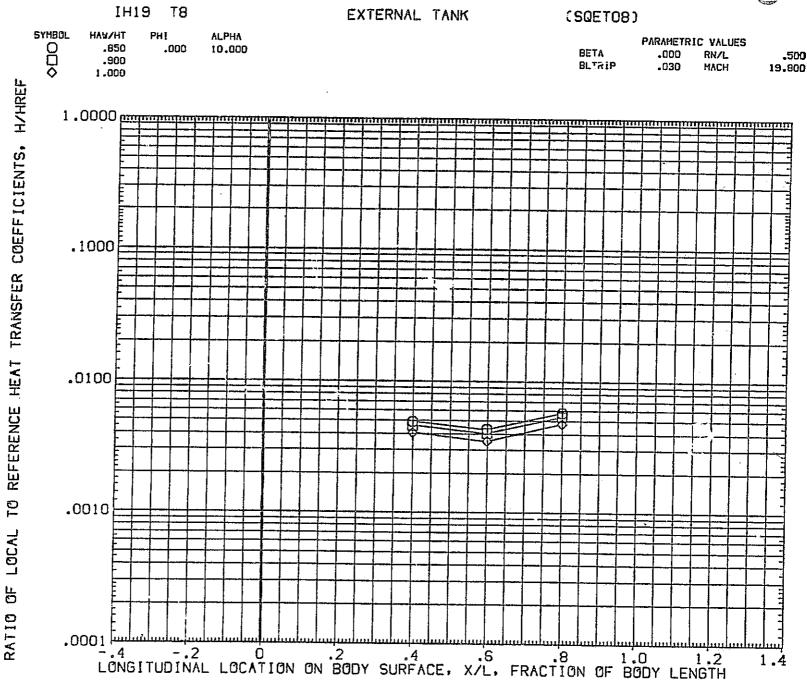
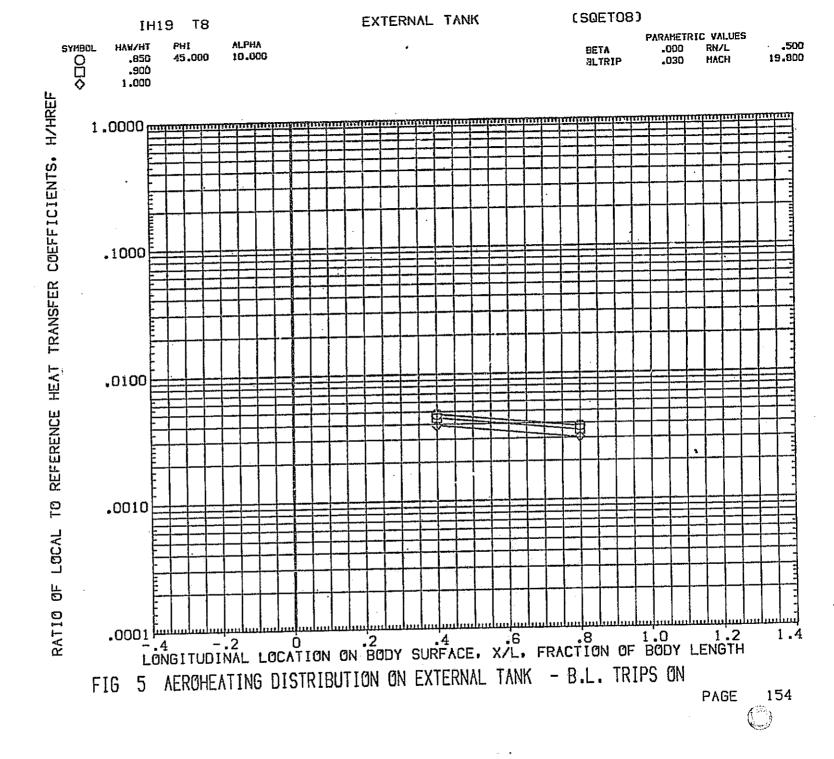
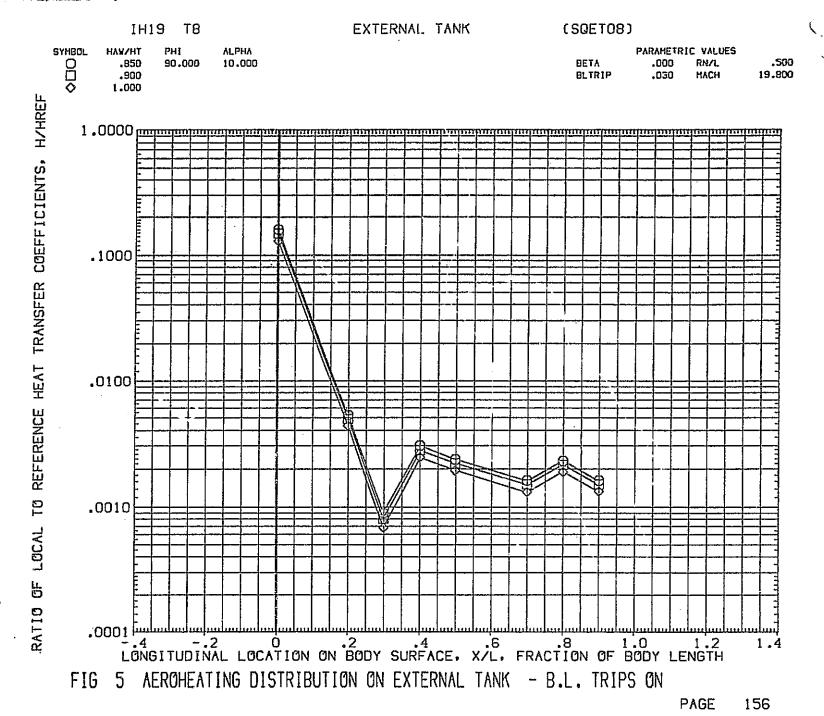


FIG 5 AEROHEATING DISTRIBUTION ON EXTERNAL TANK - B.L. TRIPS ON

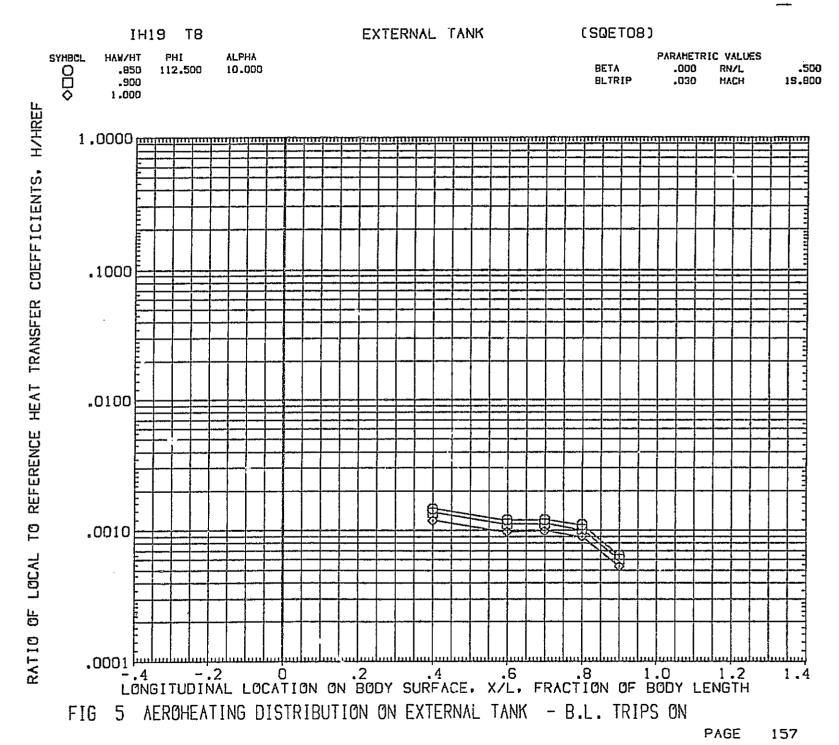


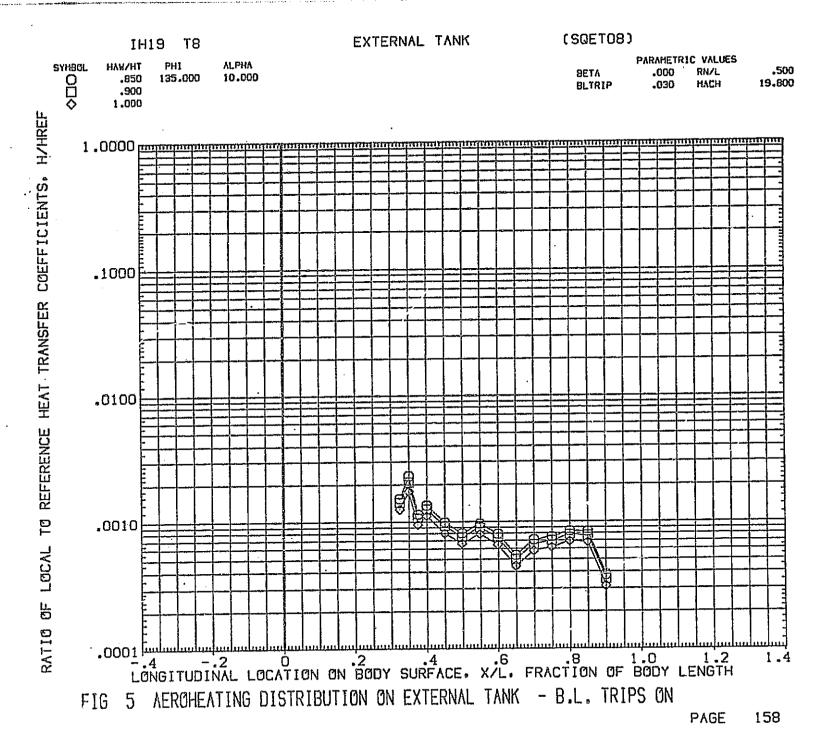
(SQETO8) IH19 T8 EXTERNAL TANK PARAMETRIC VALUES SYMBOL **ALPHA** HAYAHT 000 .000 RN/L .850 67.500 10,000 BETA HACH .900 BLTRIP .030 1.000 .1000 TRANSFER .0100 .0010 LOCAL 무 .0001 h 1.4 -.2 0 .2 .4 .6 .8 1.0 1.2 LONGITUDINAL LOCATION ON BODY SURFACE, X/L, FRACTION OF BODY LENGTH

FIG 5 AEROHEATING DISTRIBUTION ON EXTERNAL TANK - B.L. TRIPS ON

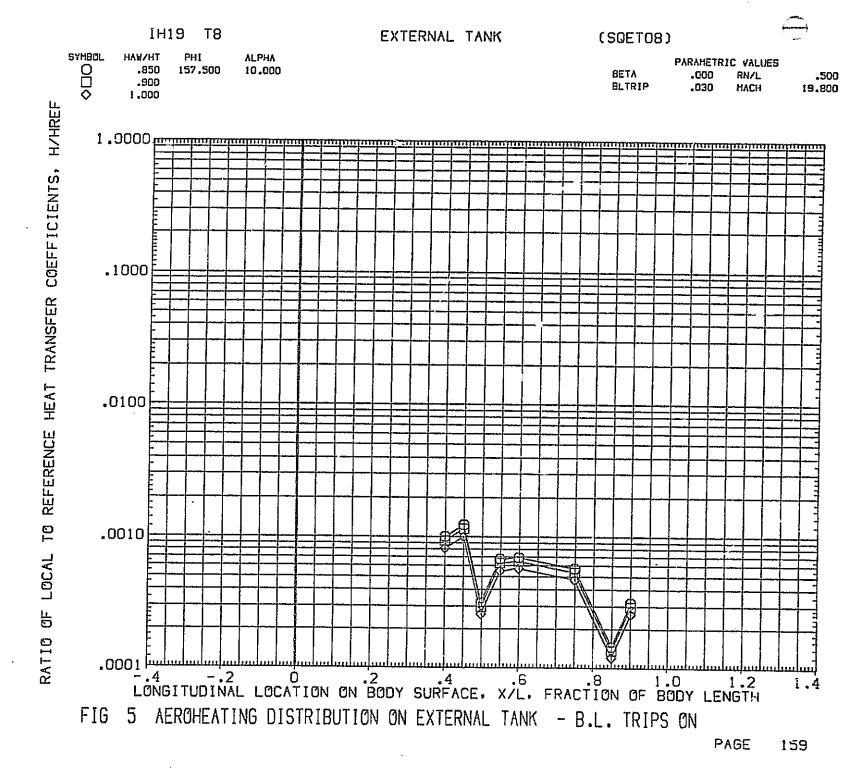


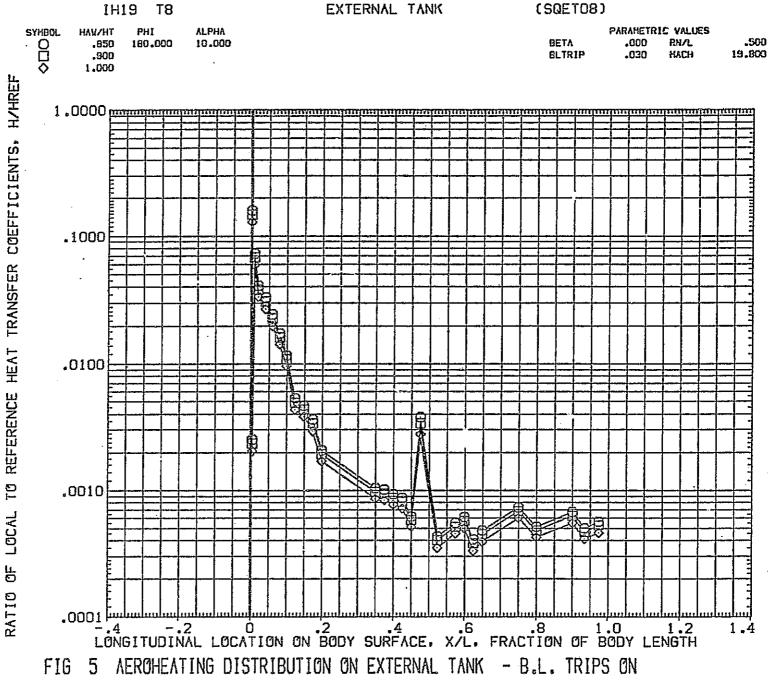






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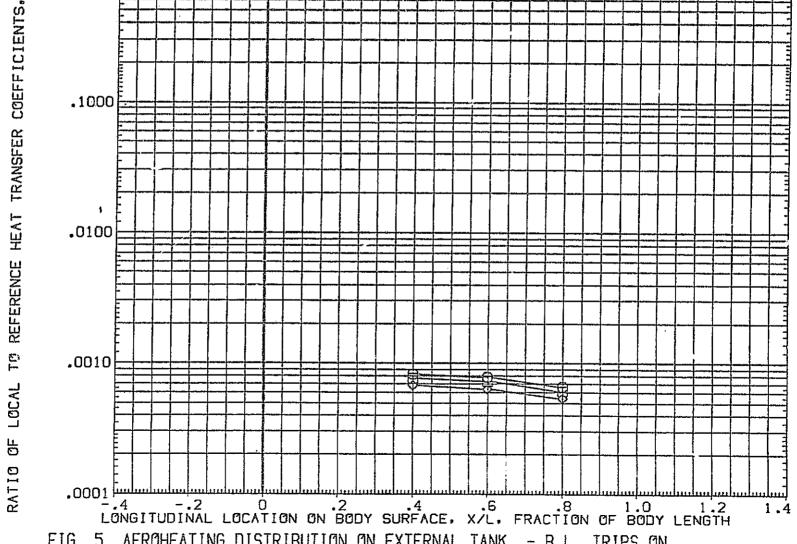






H/HREF

IH19 B22C7F5M4V7W111 T8 EXTERNAL TANK (SOETO1) SYMBOL HAW/HT **ALPHA** PARAHETRIC VALUES .850 BETA .000 RNZL .900 BLTRIP .030 DELTAH .175 1.000 MACH 19.800 .1000



5 AEROHEATING DISTRIBUTION ON EXTERNAL TANK - B.L. TRIPS ON

IH19 B22C7F5M4V7W111 T8 EXTERNAL TANK

ALPHA

(SQETO1)

PARABETRIC VALUES

PHI HAH/HT .500 SYMBOL RN/L .000 BETA 45.000 -10.000 .850 .175 000 DELTAH BLTRIP .030 .900 19.800 MACH 1,000 HAREF COEFFICIENTS, .1000 TRANSFER .0100 REFERENCE .0010 LOCAL OF. .0001 had LONGITUDINAL LOCATION ON BODY SURFACE. X/L, FRACTION OF BODY LENGTH FIG 5 AEROHEATING DISTRIBUTION ON EXTERNAL TANK - B.L. TRIPS ON PAGE 162

LONGITUDINAL LOCATION ON BODY SURFACE, X/L, FRACTION OF BODY LENGTH

FIG 5 AEROHEATING DISTRIBUTION ON EXTERNAL TANK - B.L. TRIPS ON

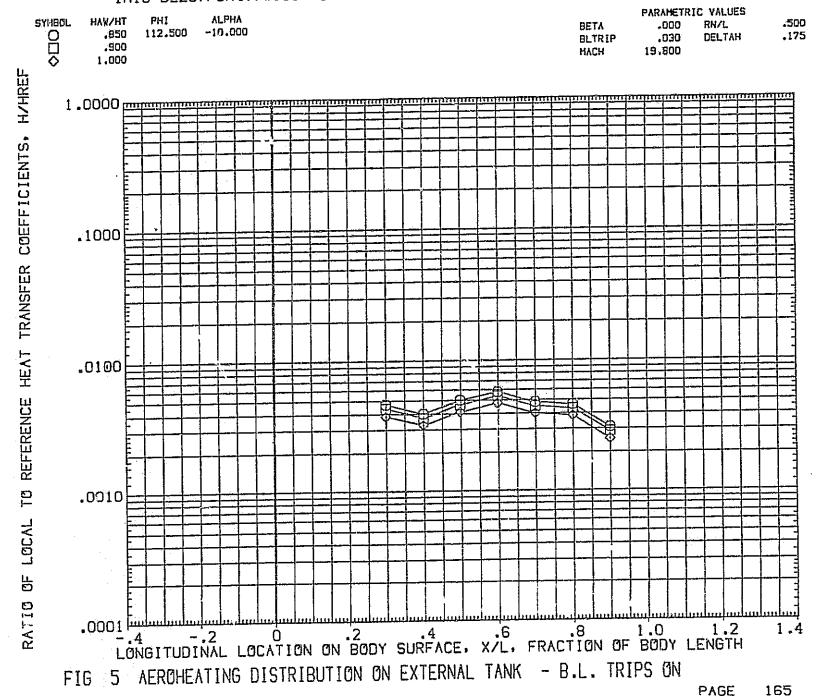
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IH19 B22C7F5M4V7W111 T8 EXTERNAL TANK

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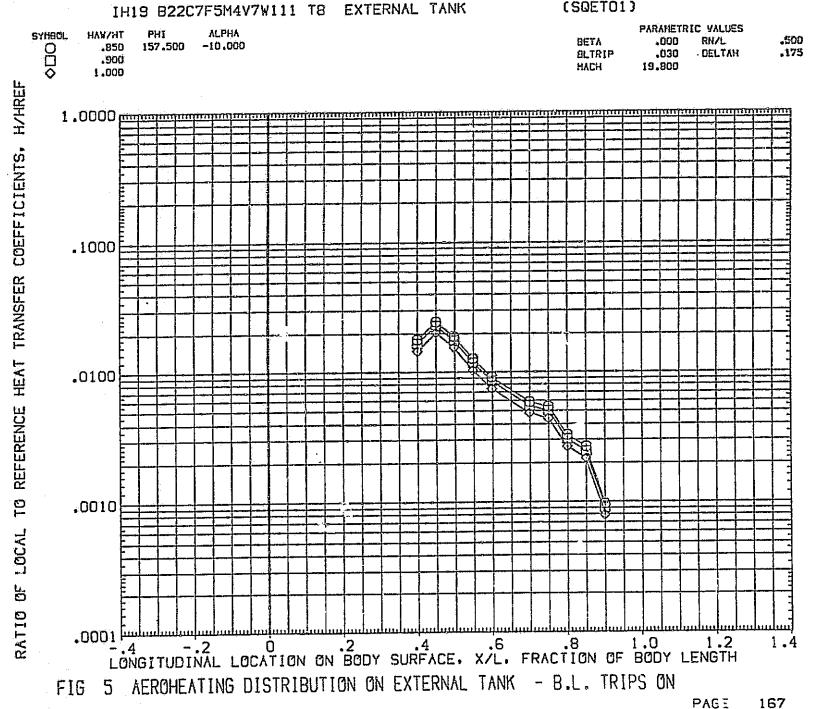


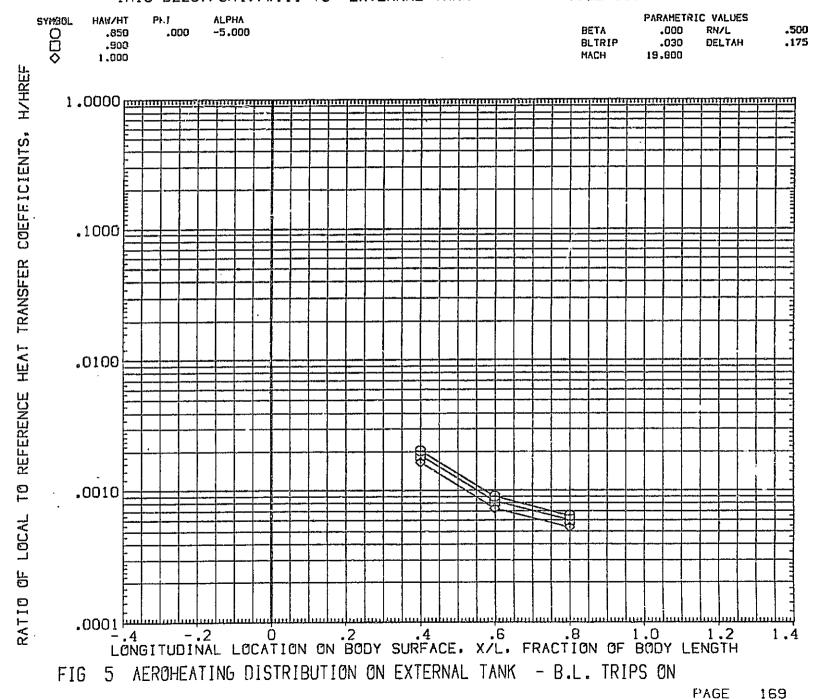
FIG 5 AEROHEATING DISTRIBUTION ON EXTERNAL TANK - B.L. TRIPS ON

REPRODUCIBILITY OF THE ORIGINAL PAGE IS POOR



IH19 B22C7F5M4V7W111 T8 EXTERNAL TANK

(SQETO1)



LONGITUDINAL LOCATION ON BODY SURFACE, X/L. FRACTION OF BODY LENGTH FIG 5 AEROHEATING DISTRIBUTION ON EXTERNAL TANK - B.L. TRIPS ON

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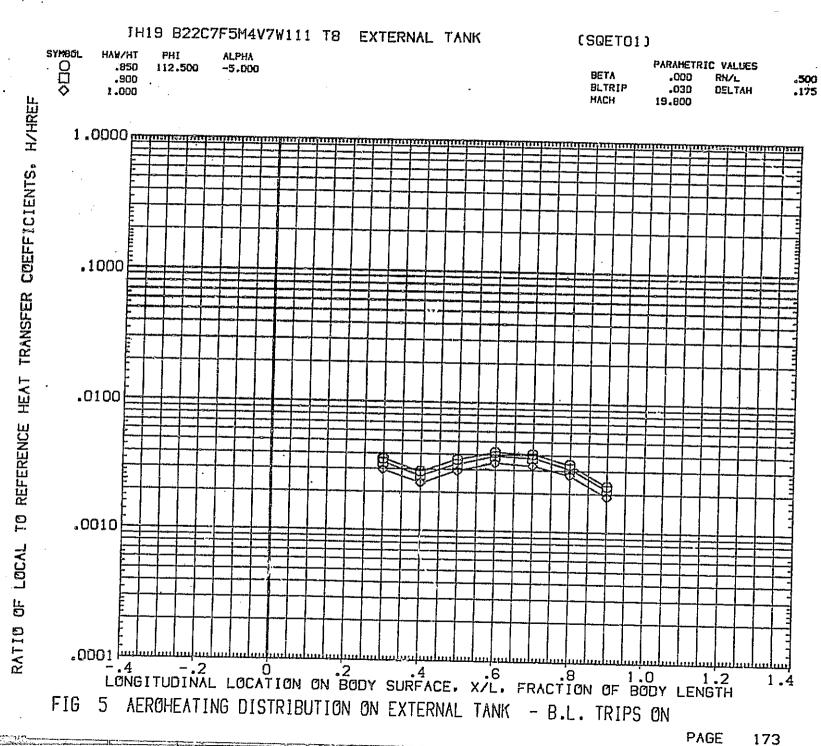


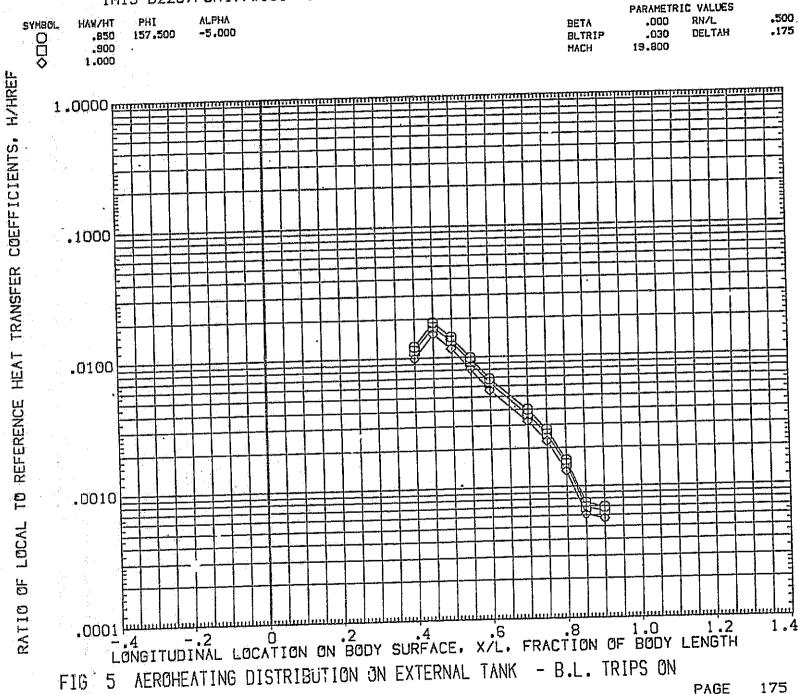
FIG 5 AEROHEATING DISTRIBUTION ON EXTERNAL TANK - B.L. TRIPS ON

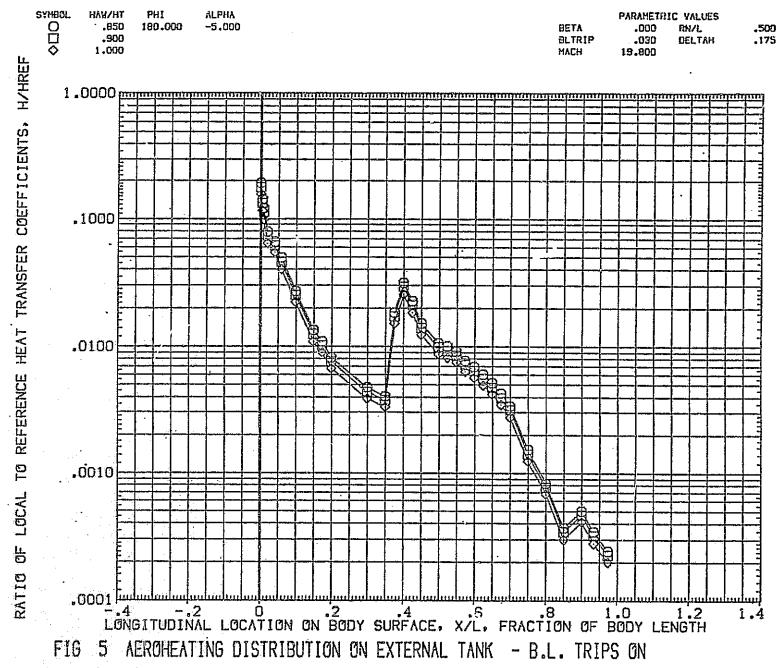
LONGITUDINAL LOCATION ON BODY SURFACE. X/L. FRACTION OF BODY LENGTH

REPRODUCIBILITY OF THE ORIGINAL PAGE IS POOR

IH19 B22C7F5M4V7W111 T8 EXTERNAL TANK

(SQETO1)









IH19 B22C7F5M4V7W111 T8 EXTERNAL TANK

(SQETO1) HAW/HT THE **ALPHA**

SYMBOL PARAMETRIC VALUES 8 .850 .000 .000 BETA .000 RN/L .500 .900 BLTRIP .030 DELTAH .175 1.000 MACH 19.800

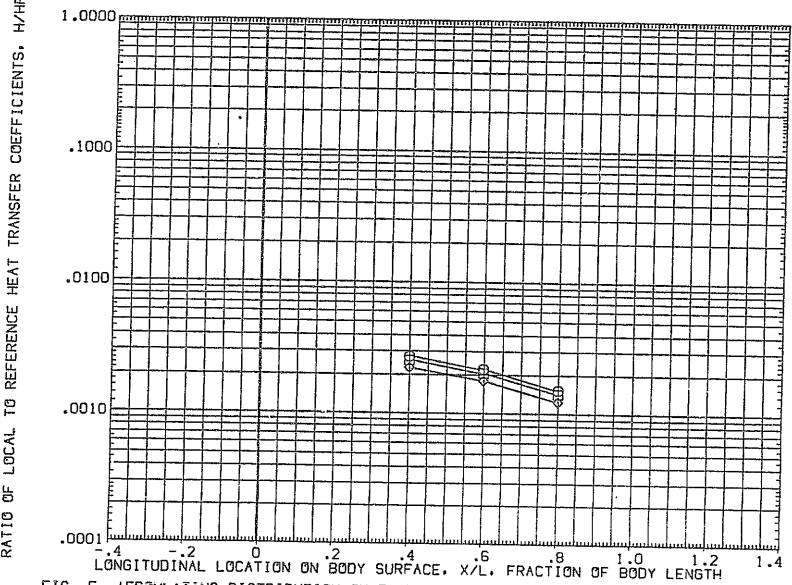


FIG 5 AEROHLATING DISTRIBUTION ON EXTERNAL TANK - B.L. TRIPS ON

FIG 5 AEROHEATING DISTRIBUTION ON EXTERNAL TANK - B.L. TRIPS ON



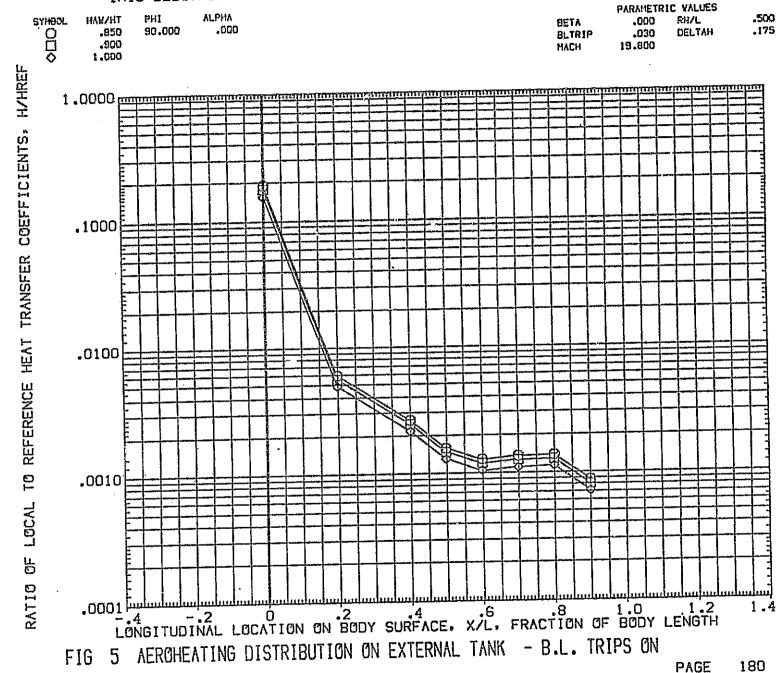


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IH19 B22C7F5M4V7W111 T8 EXTERNAL TANK

(SQETO1)

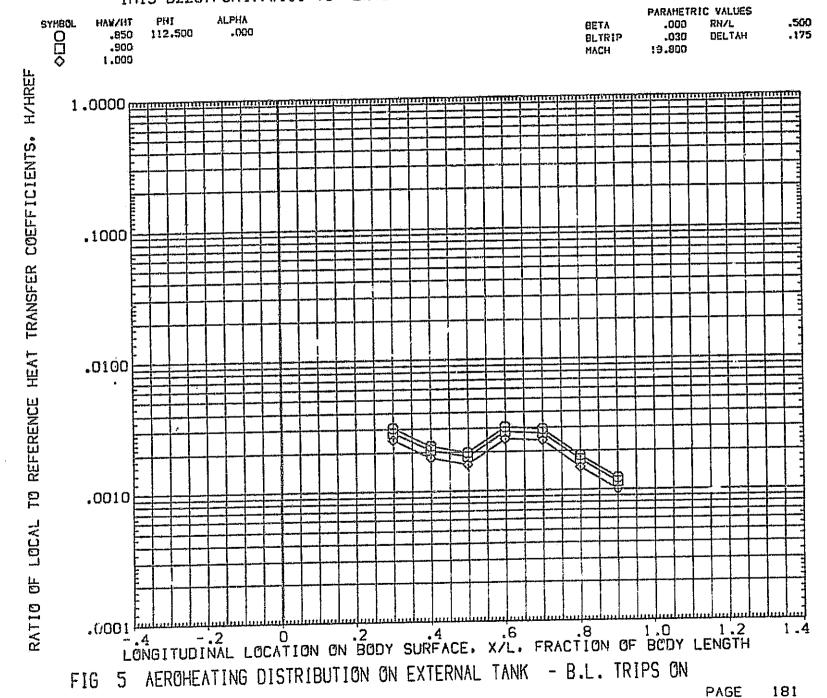
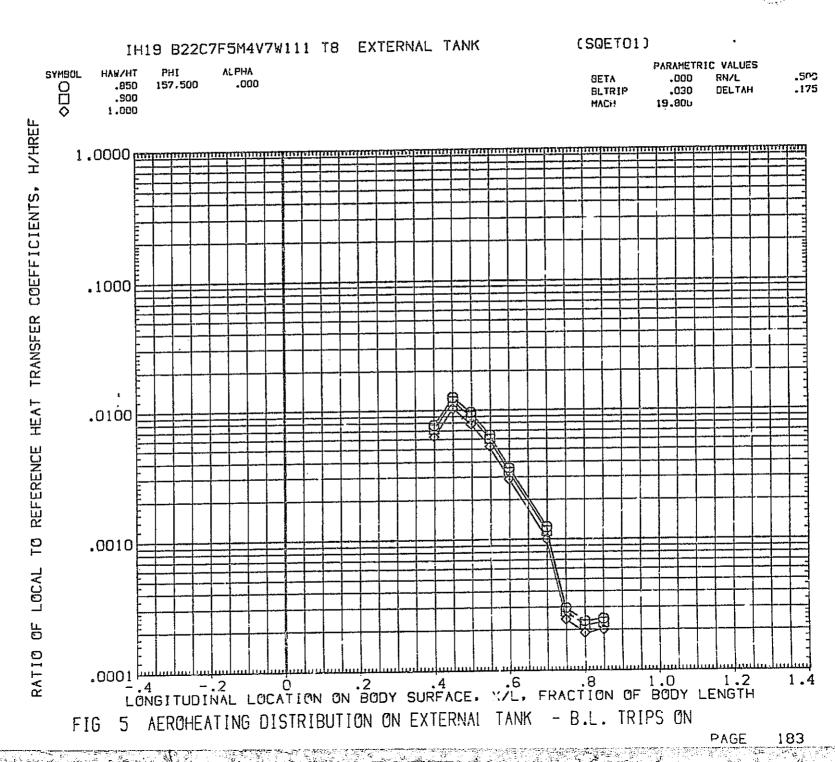


FIG 5 MEROHEATING DISTRIBUTION ON EXTERNAL TANK - B.L. TRIPS ON PAGE





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LONGITUDINAL LOCATION ON BODY SURFACE, X/L, FRACTION OF BODY LENGTH FIG 5 AEROHEATING DISTRIBUTION ON EXTERNAL TANK - B.L. TRIPS ON

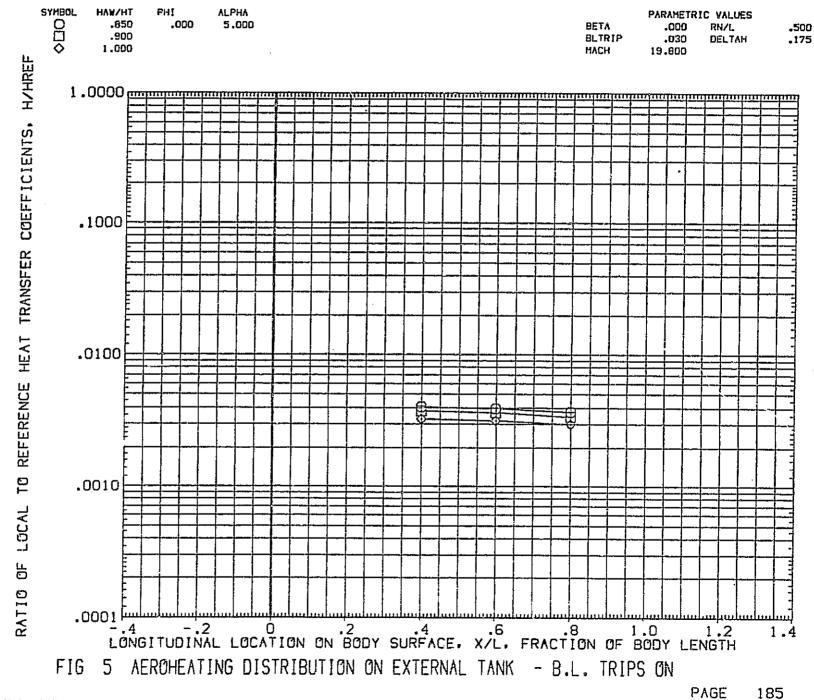
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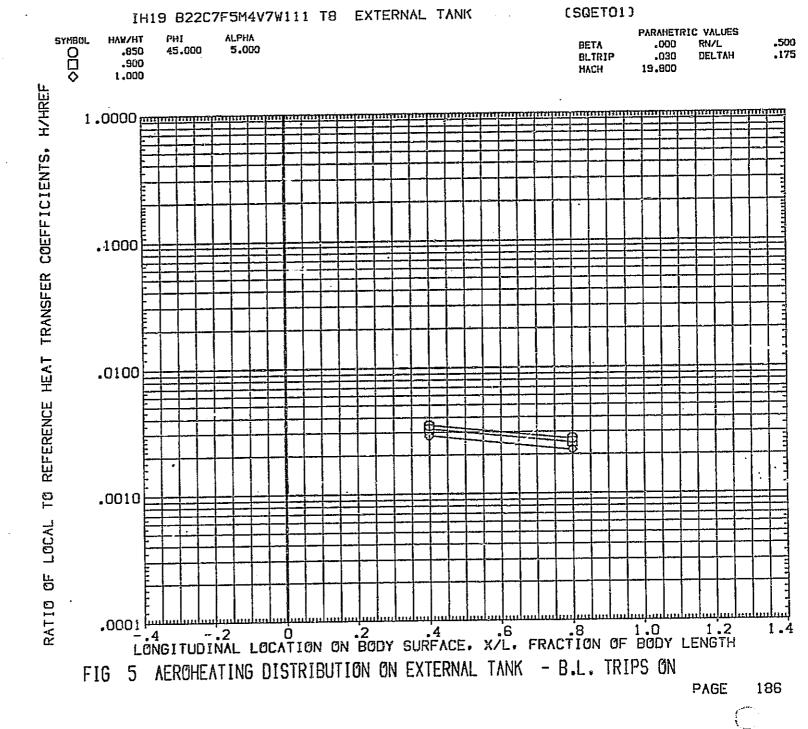




IH19 B22C7F5M4V7W111 T8 EXTERNAL TANK

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IH19 B22C7F5M4V7W111 T8 EXTERNAL TANK

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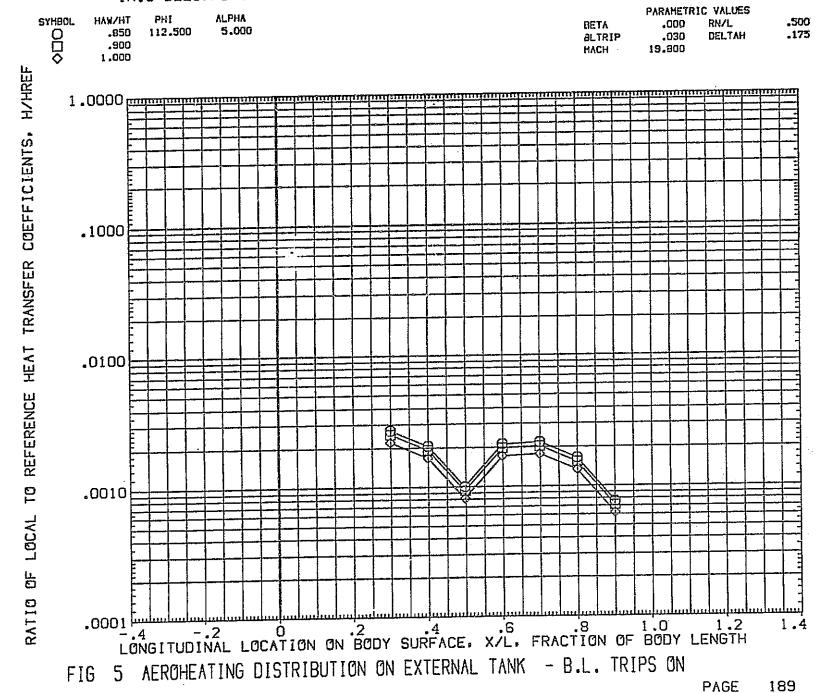
LONGITUDINAL LOCATION ON BODY SURFACE, X/L. FRACTION OF BODY LENGTH
FIG 5 AEROHEATING DISTRIBUTION ON EXTERNAL TANK - B.L. TRIPS ON





IH19 B22C7F5M4V7W111 T8 EXTERNAL TANK

(SQETO1)



1.4 -.2 0 .2 .4 .6 .8 1.0 1.2 LONGITUDINAL LOCATION ON BODY SURFACE, X/L, FRACTION OF BODY LENGTH FIG 5 AEROHEATING DISTRIBUTION ON EXTERNAL TANK - B.L. TRIPS ON

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PARAMETRIC VALUES

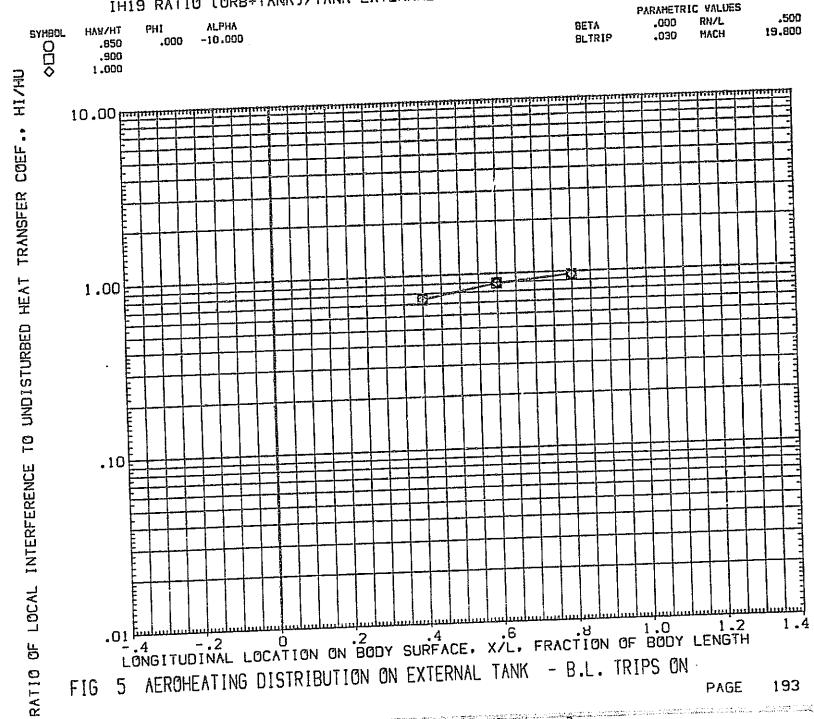
IH19 B22C7F5M4V7W111 T8 EXTERNAL TANK

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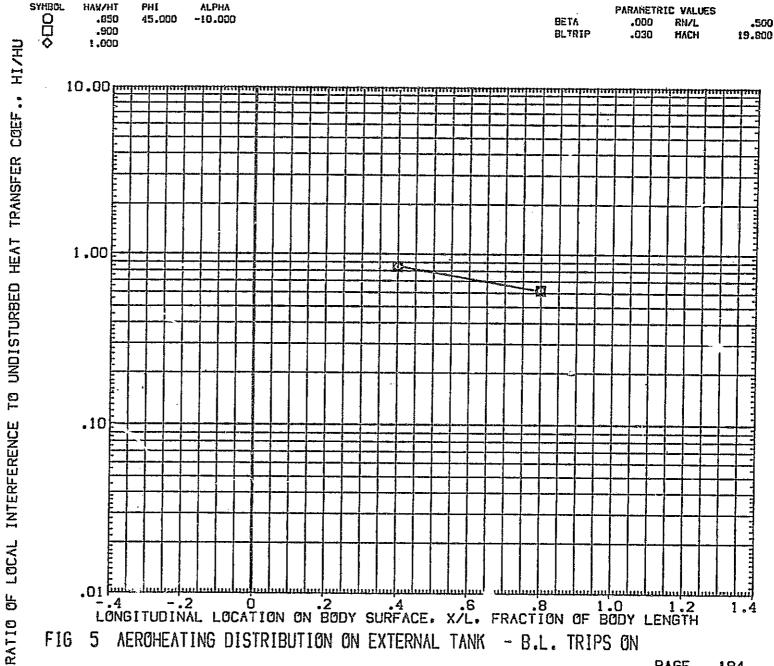
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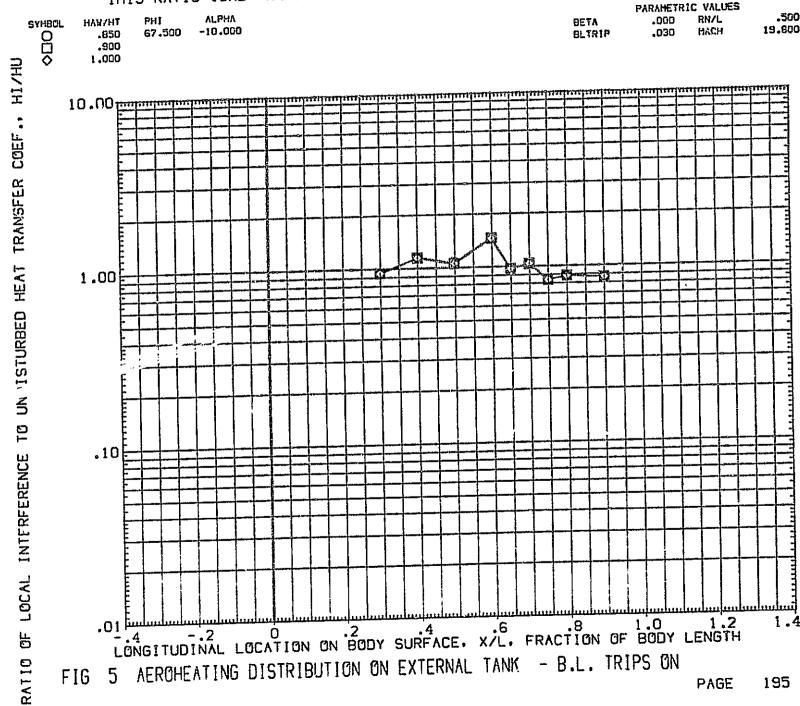


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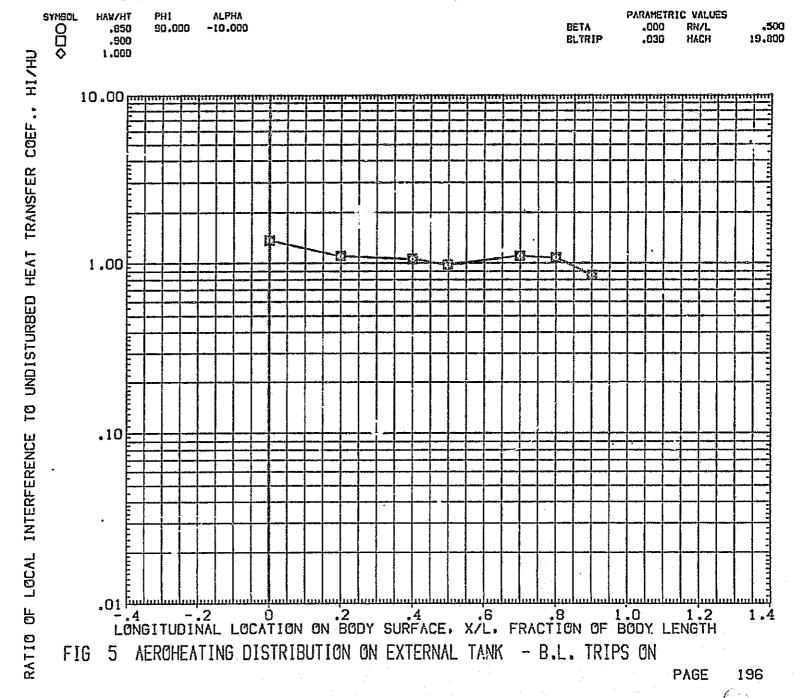




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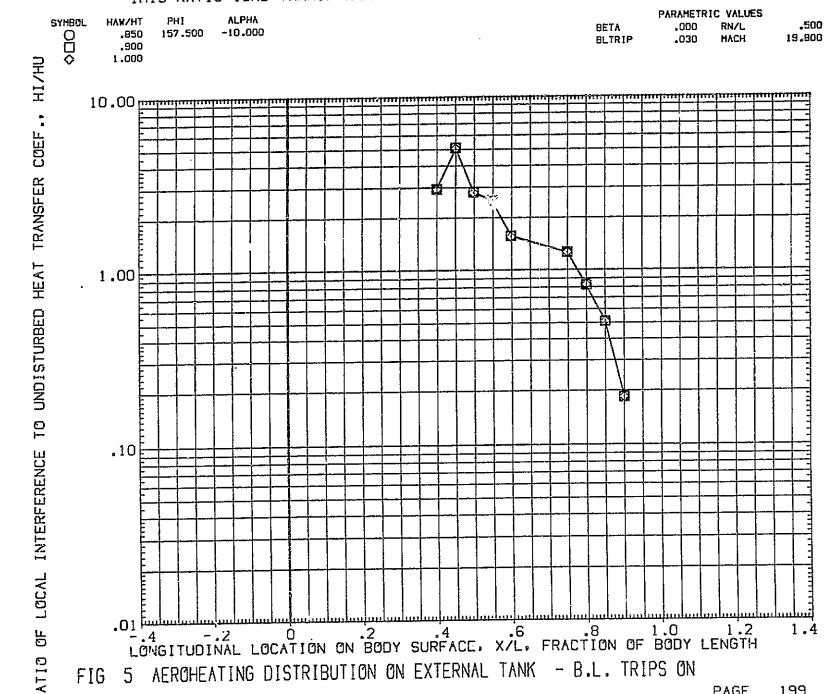
IH19 RATIO (ORB+TANK)/TANK EXTERNAL TANK

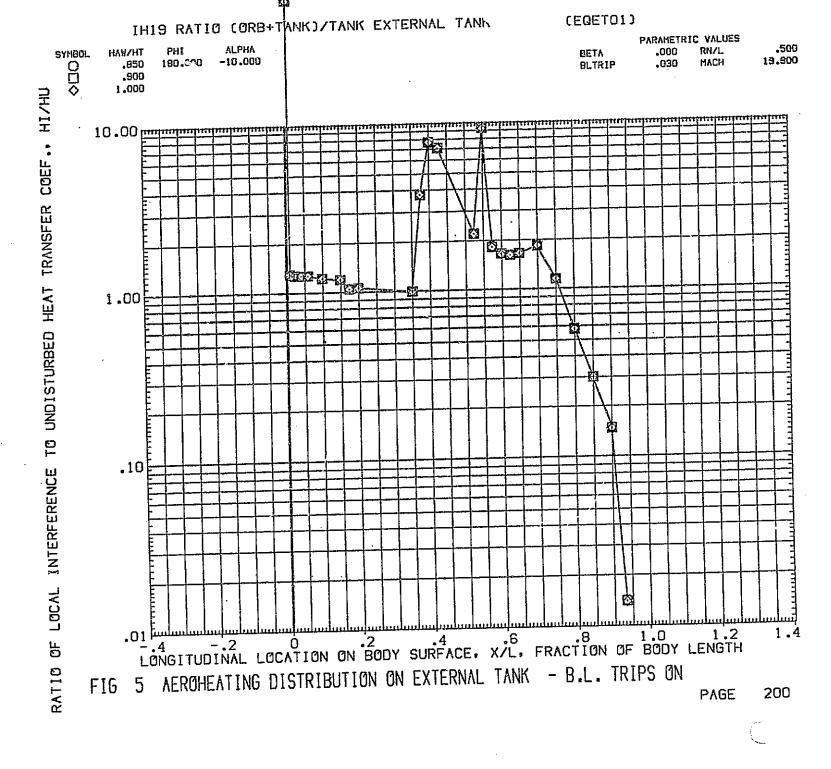
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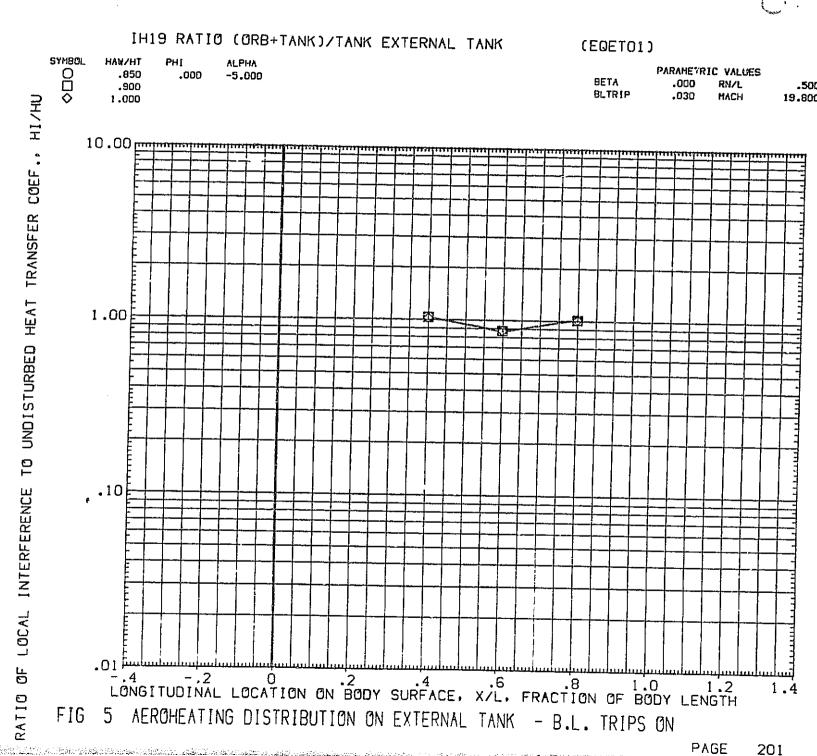


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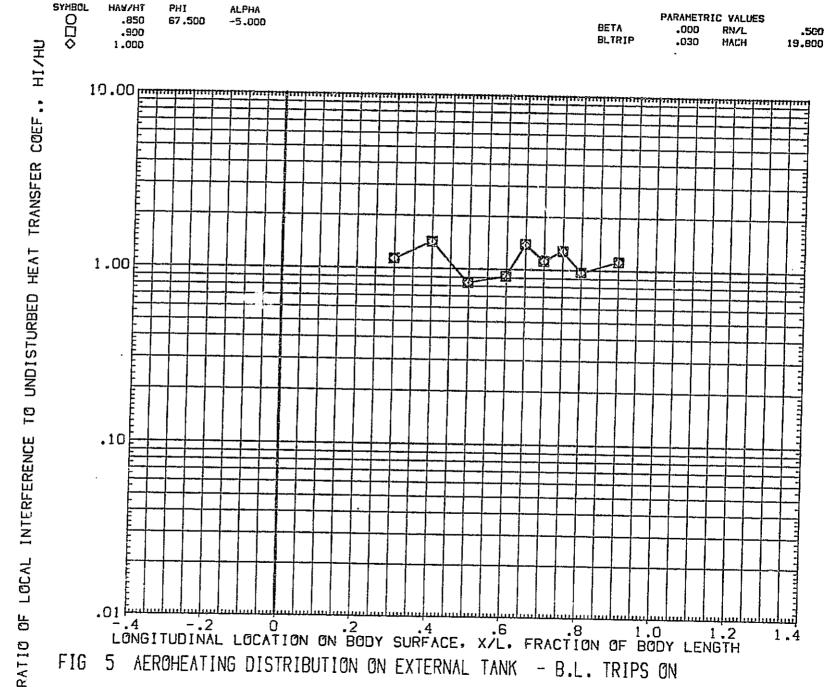


FIG 5 AEROHEATING DISTRIBUTION ON EXTERNAL TANK - B.L. TRIPS ON





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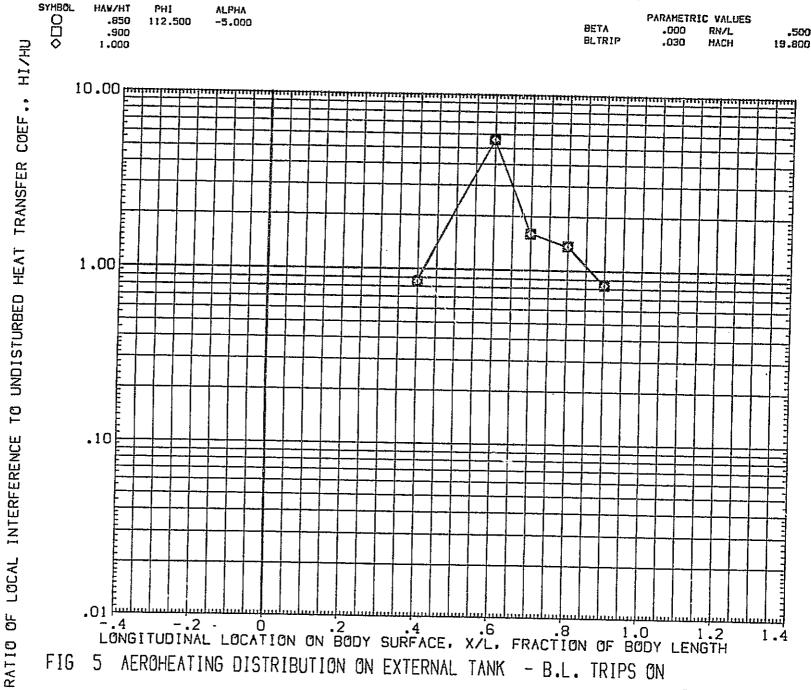


FIG 5 AEROHEATING DISTRIBUTION ON EXTERNAL TANK - B.L. TRIPS ON

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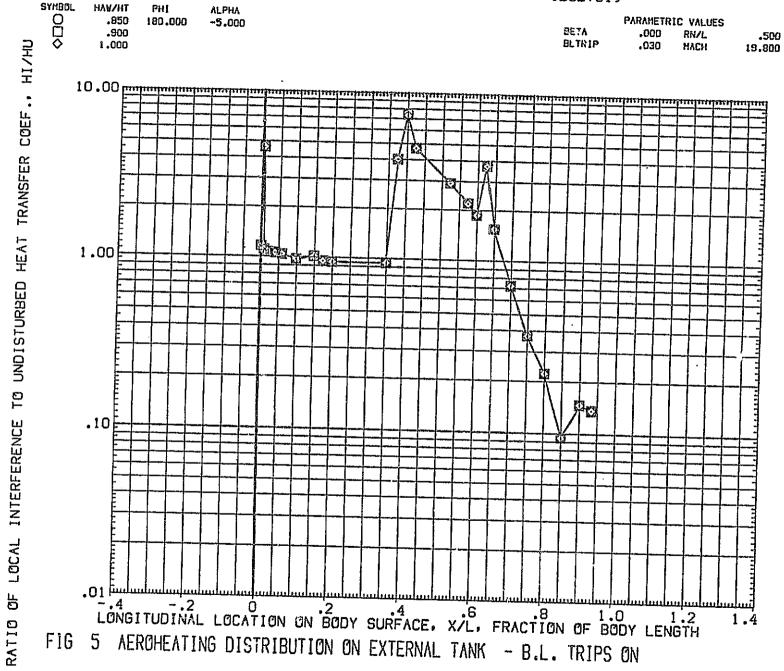




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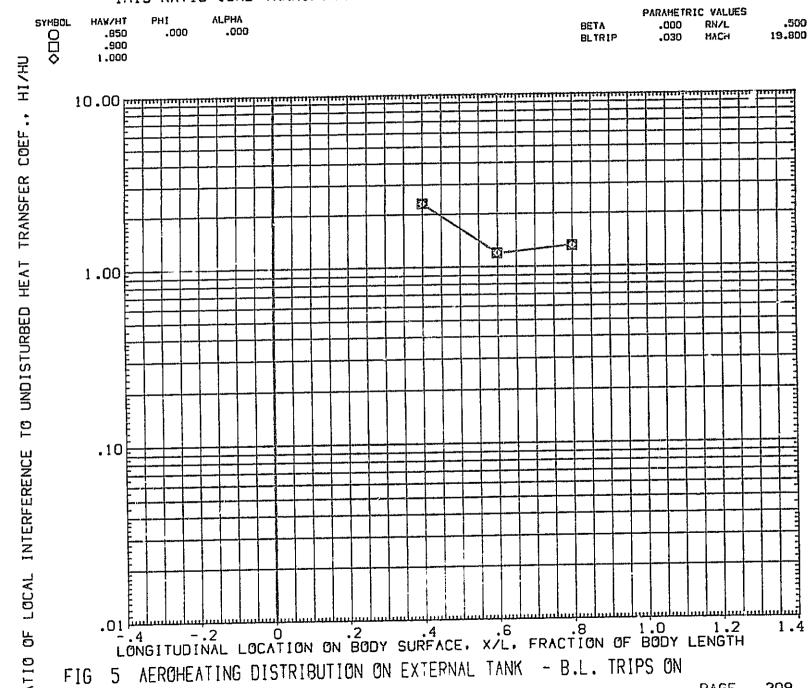
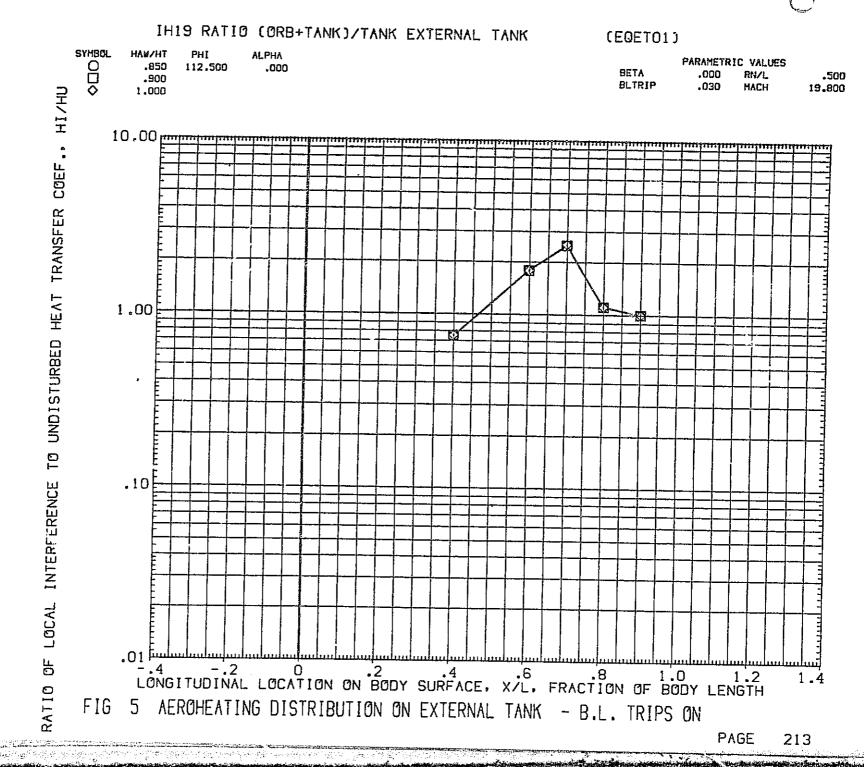


FIG 5 AEROHEATING DISTRIBUTION ON EXTERNAL TANK - B.L. TRIPS ON

IH19 RATIO (ORB+TANK)/TANK EXTERNAL TANK (EQETO1) SYMBOL HAW/HT PARAMETRIC VALUES 000 67.500 .850 BETA RN/L .900 BLTRIP .030 MACH 1.000 10.00 թորո TRANSFER COEF., UNDISTURBED HEAT 1.00 Ð .10 INTERFERENCE -.4 -.2 0 .2 .4 .6 .8 1.0 1.2 LONGITUDINAL LOCATION ON BODY SURFACE, X/L, FRACTION OF BODY LENGTH FIG 5 AEROHEATING DISTRIBUTION ON EXTERNAL TANK - B.L. TRIPS ON

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IH19 RATIO (ORB+TANK)/TANK EXTERNAL TANK

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FIG 5 AEROHEATING DISTRIBUTION ON EXTERNAL TANK - B.L. TRIPS ON

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IH19 RATIO (ORB+TANK)/TANK EXTERNAL TANK (EQETO1)

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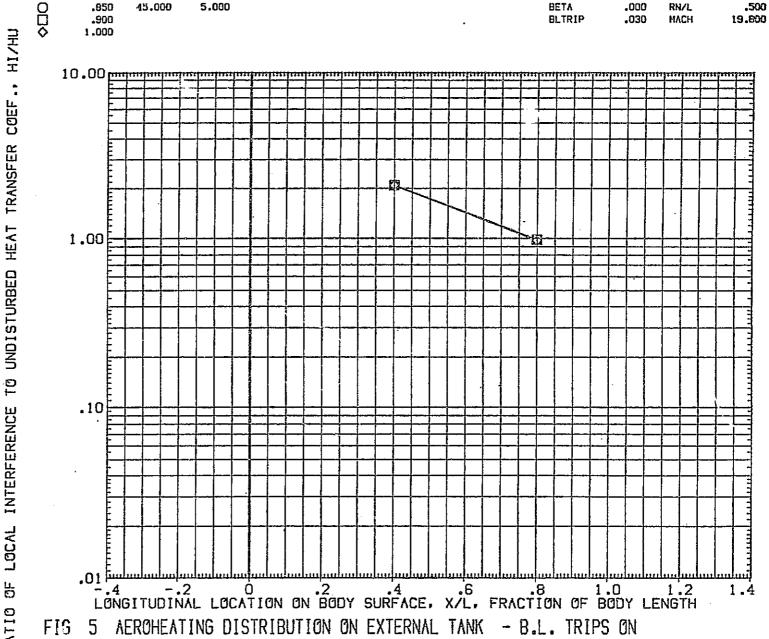
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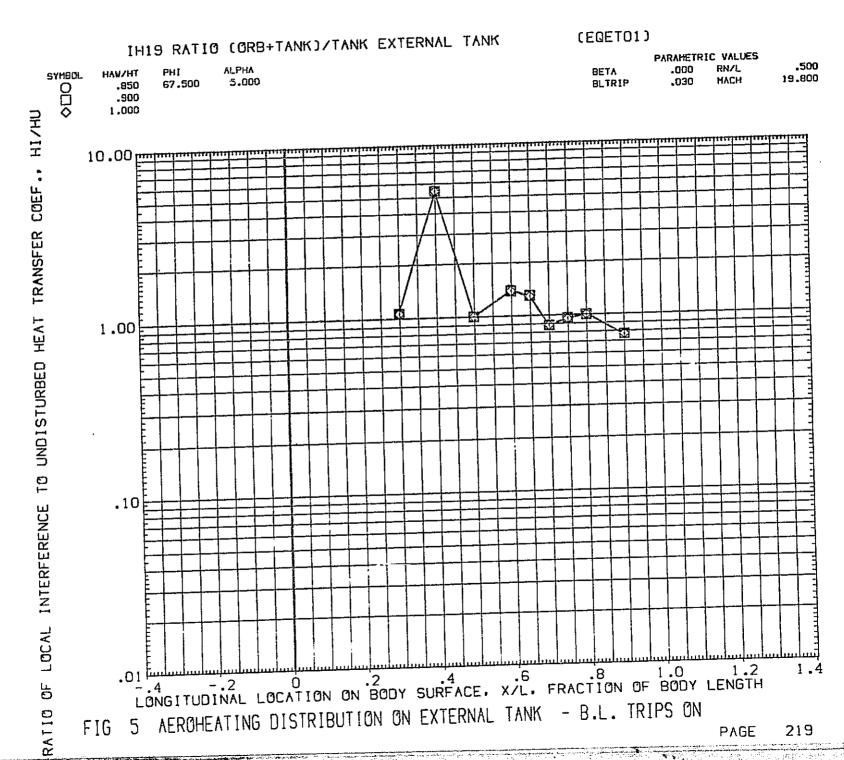
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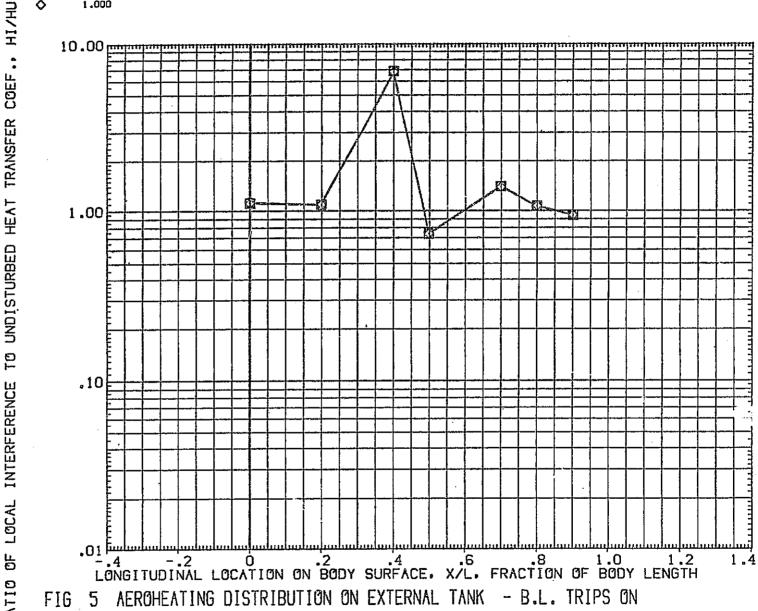


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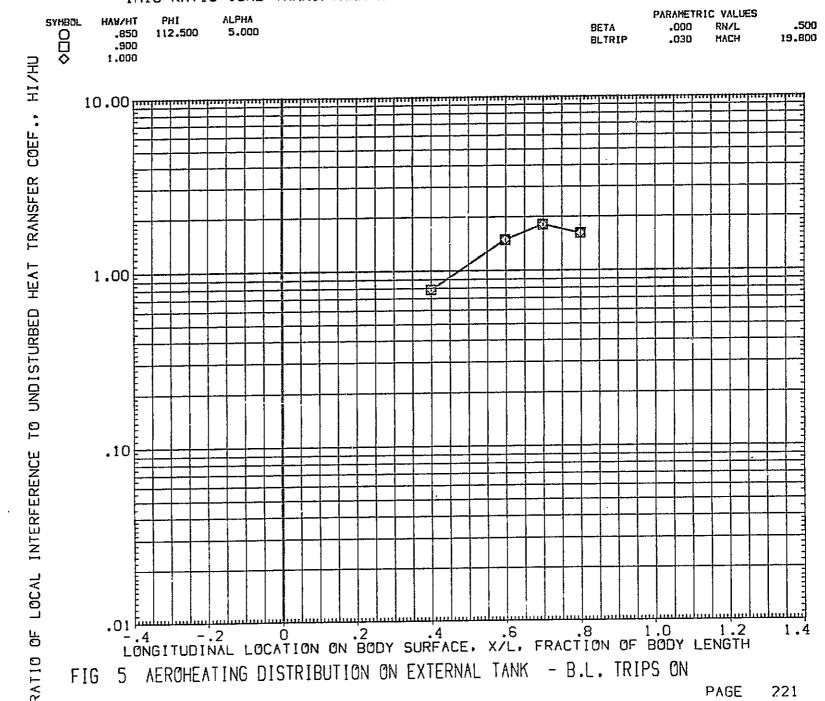
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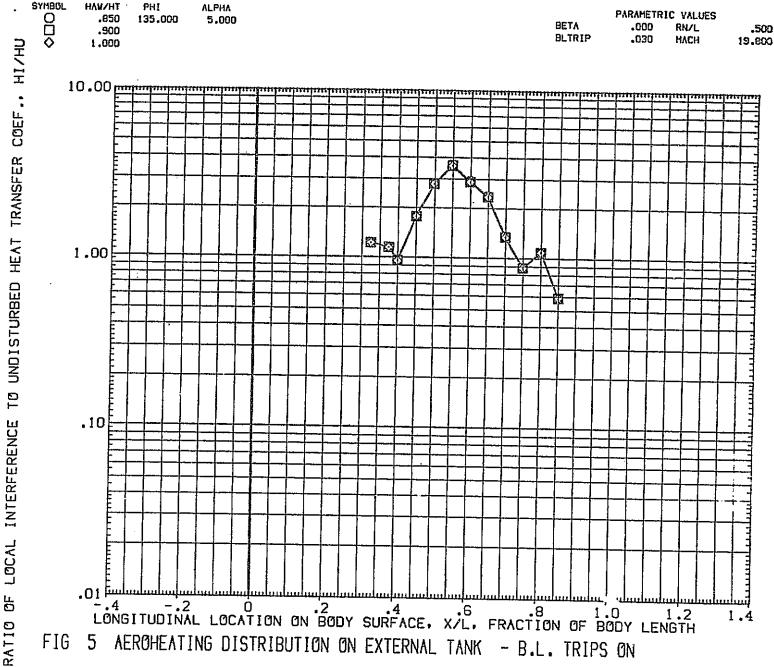
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(EQETO1)



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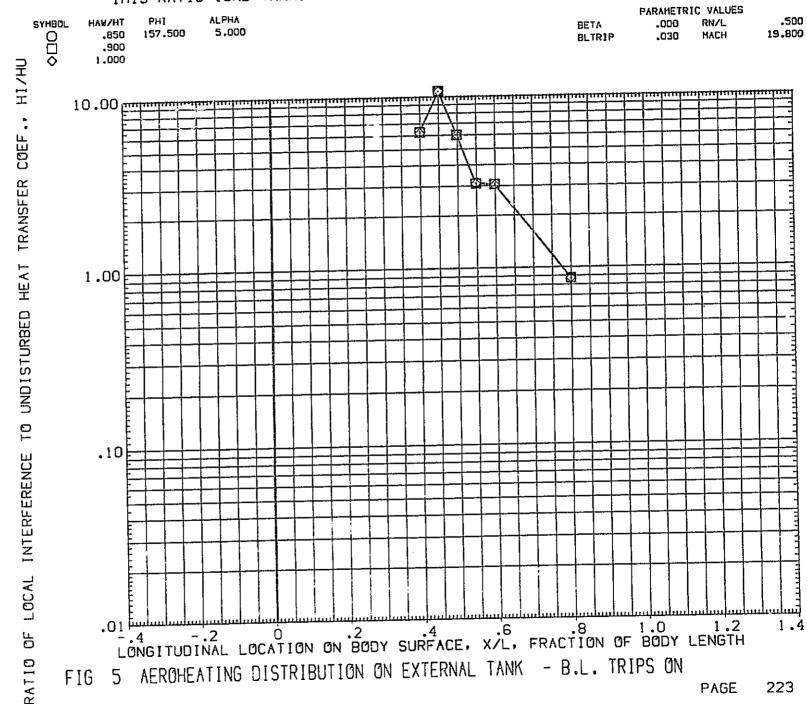
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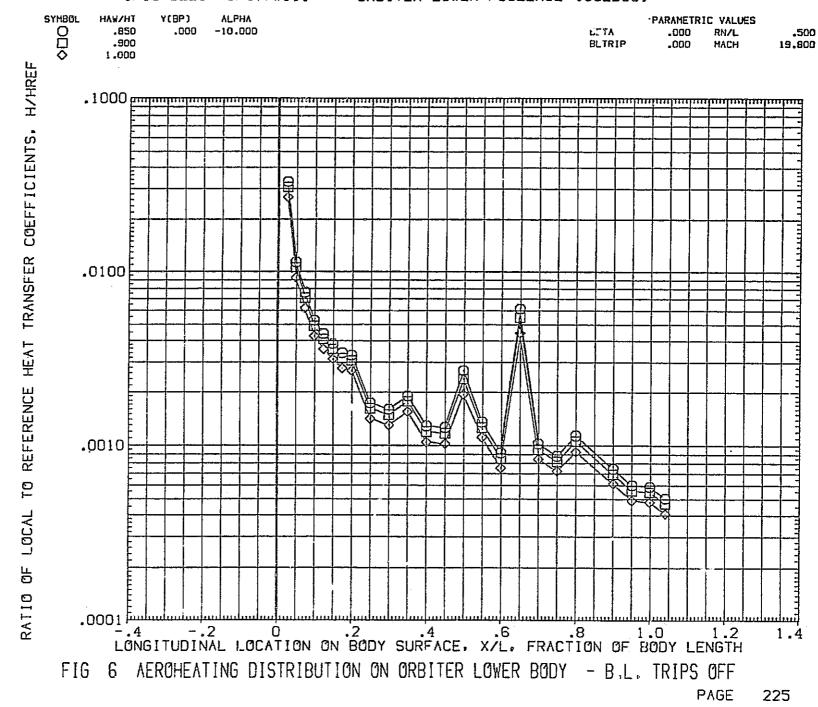
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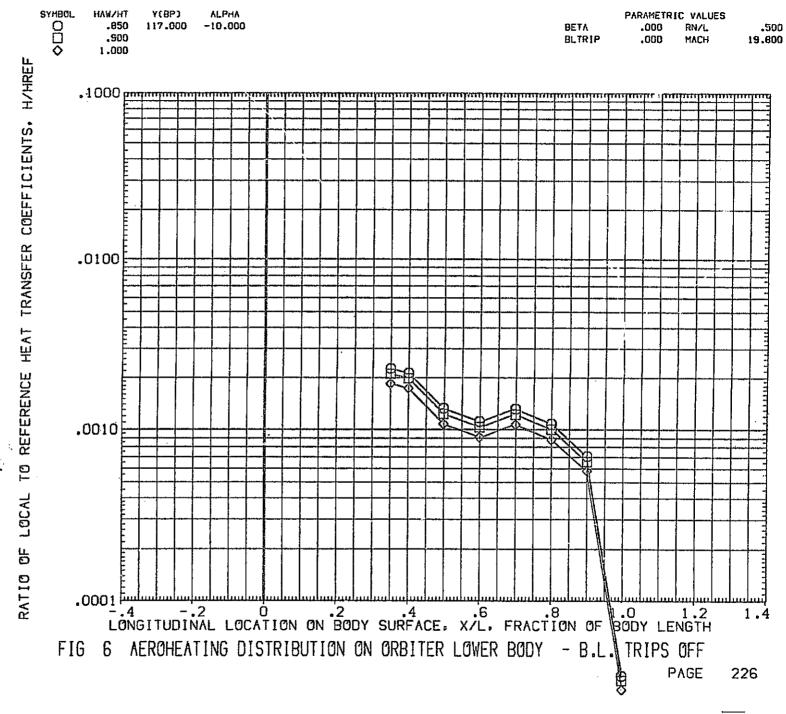
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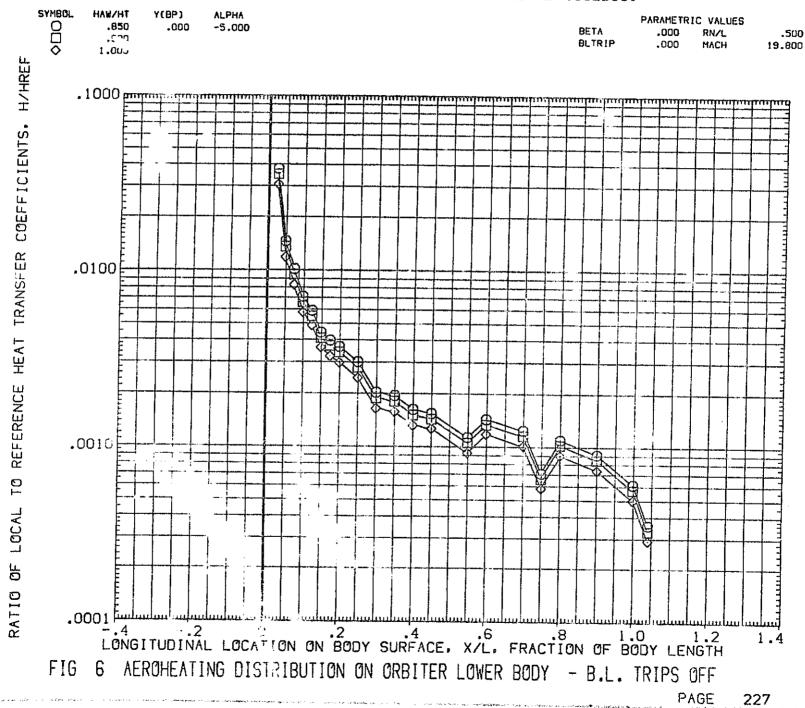
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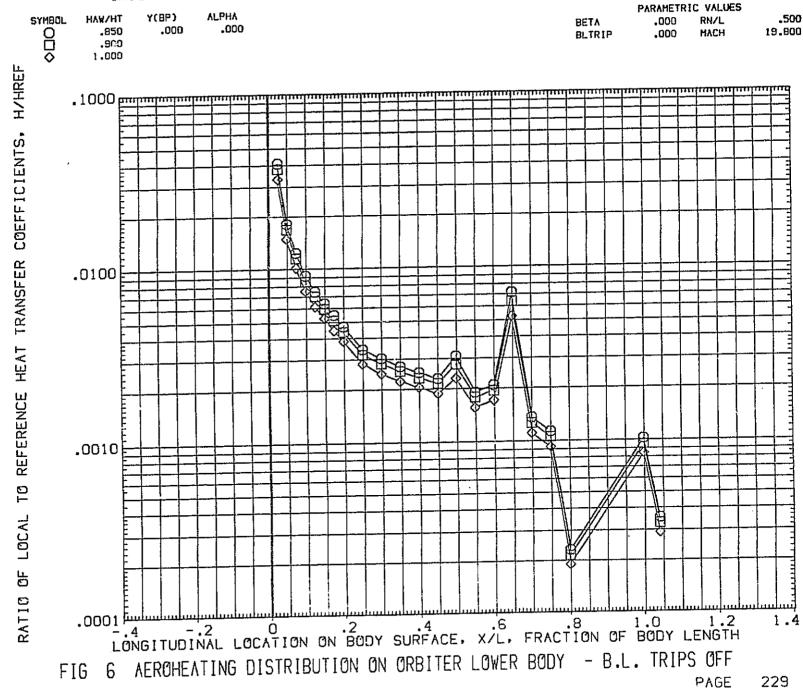
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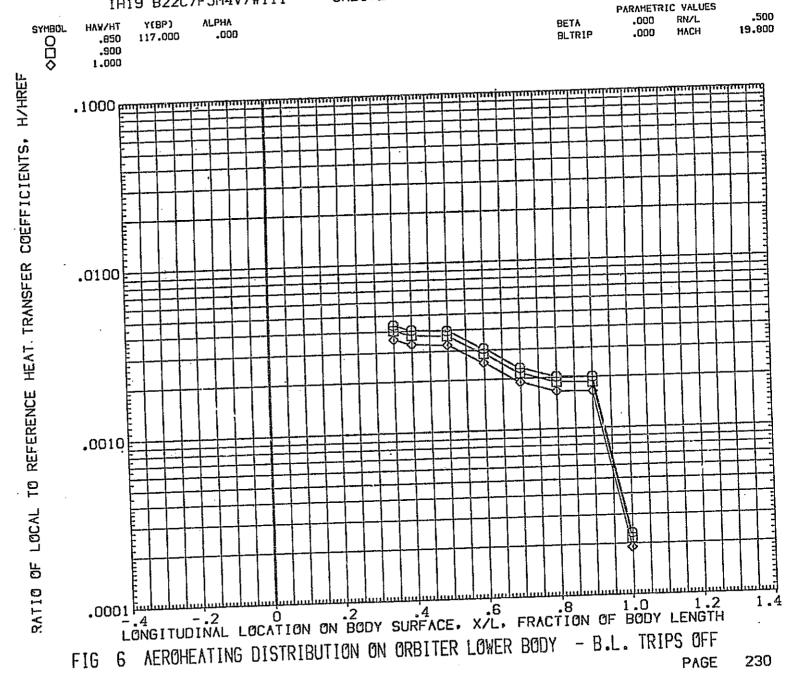
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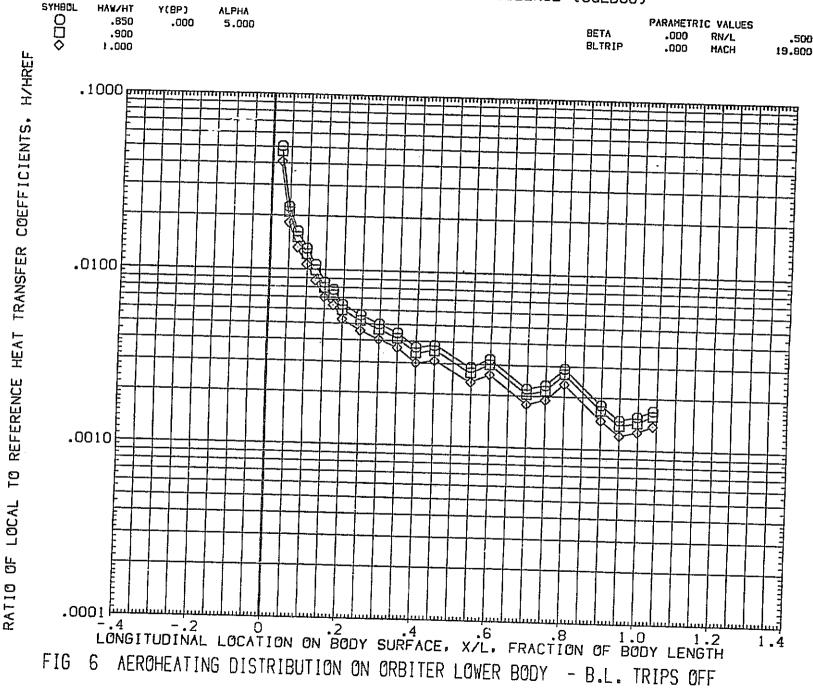
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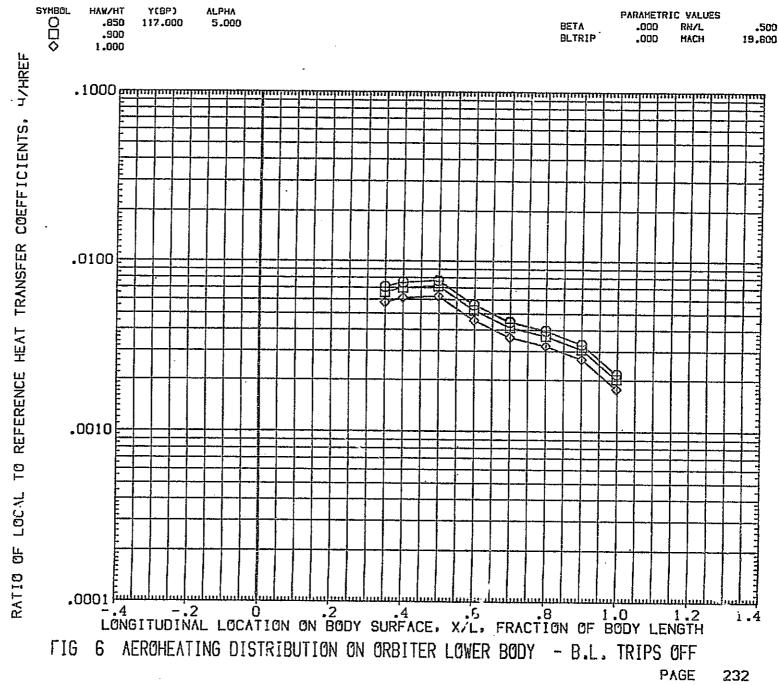
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ORBITER LOWER FUSELAGE (SQEBO6)



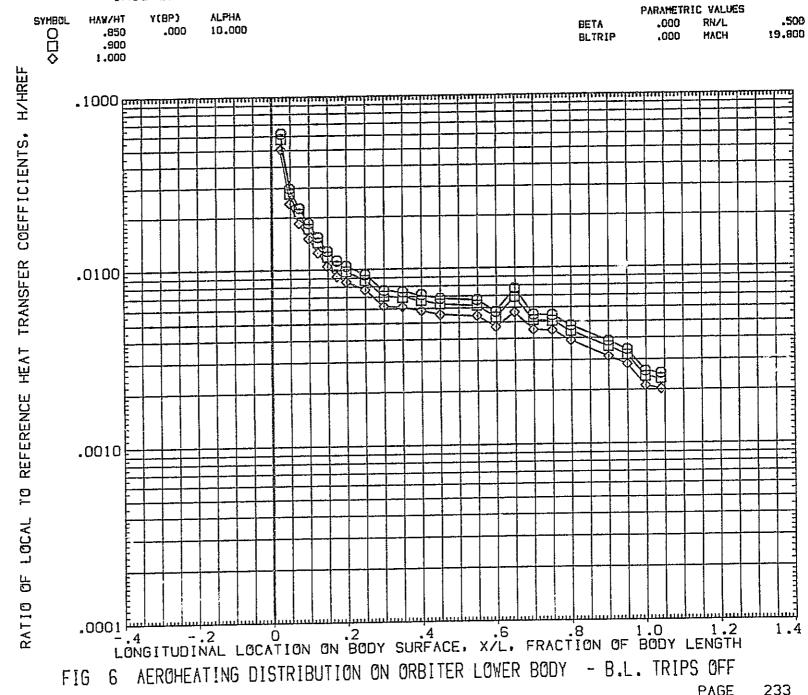






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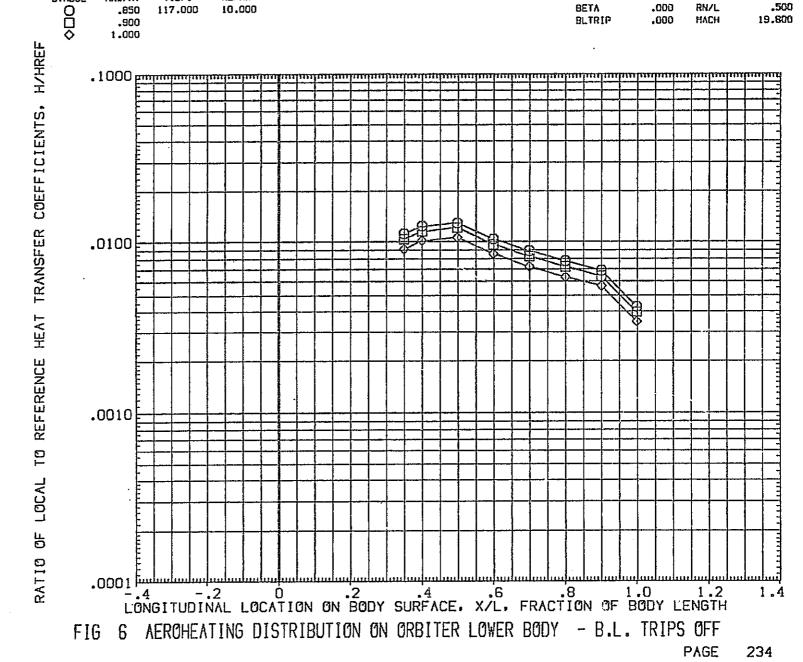


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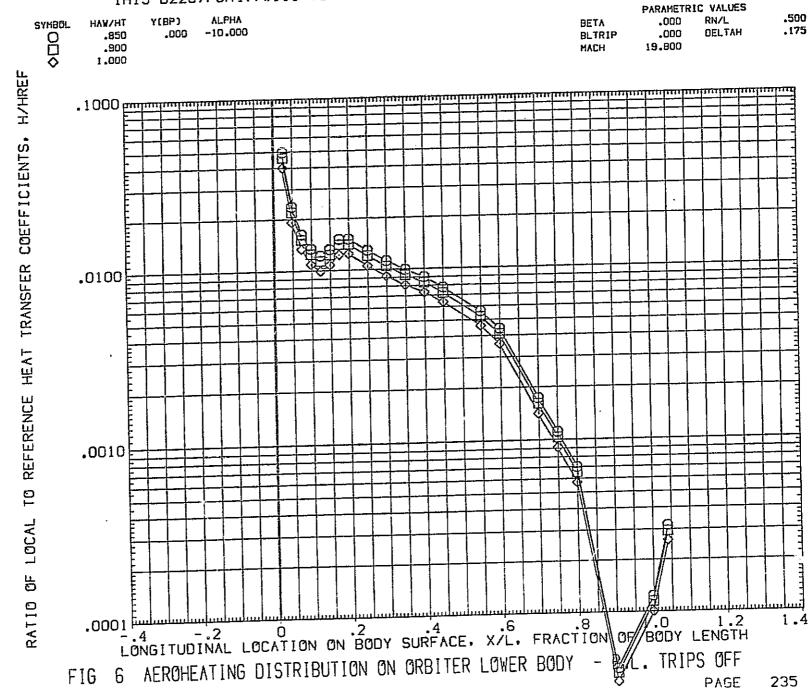
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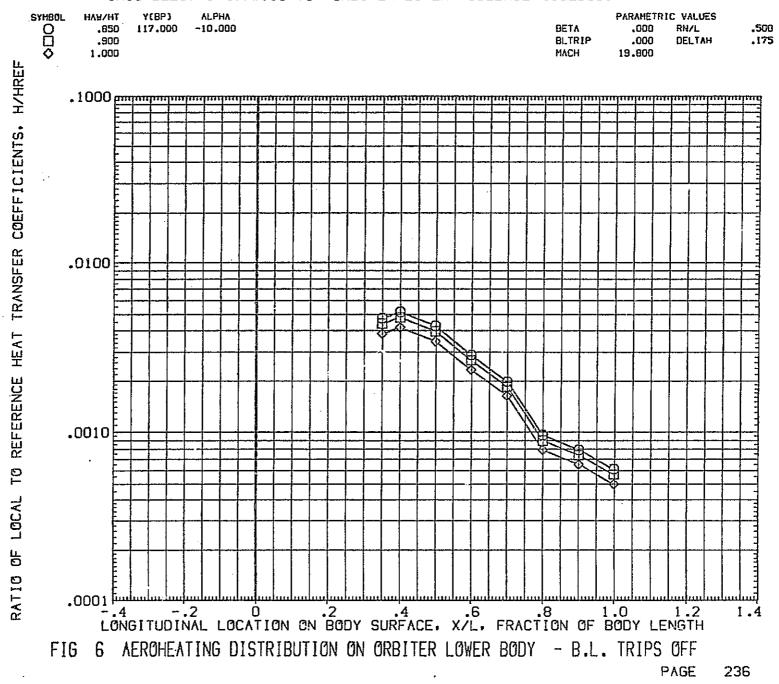
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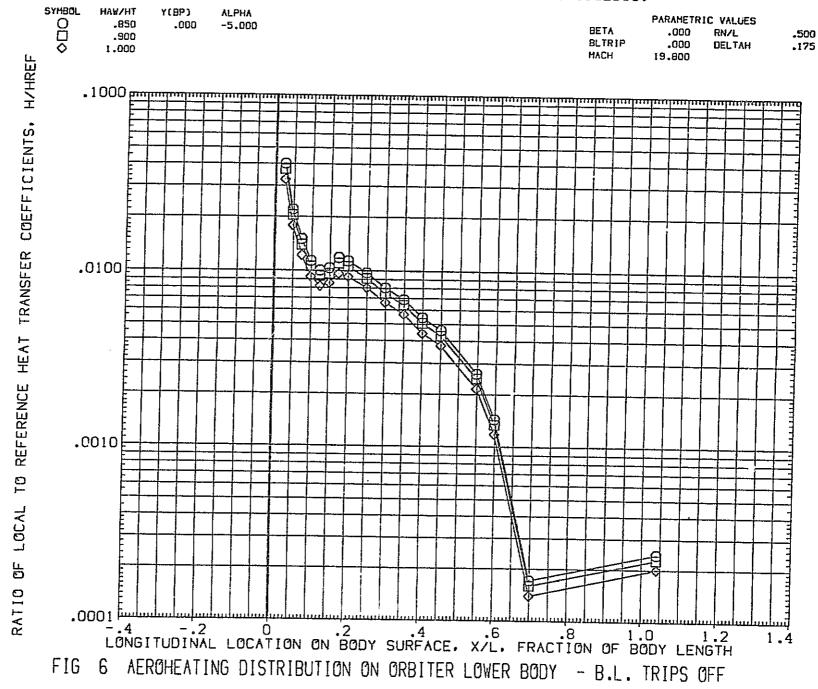
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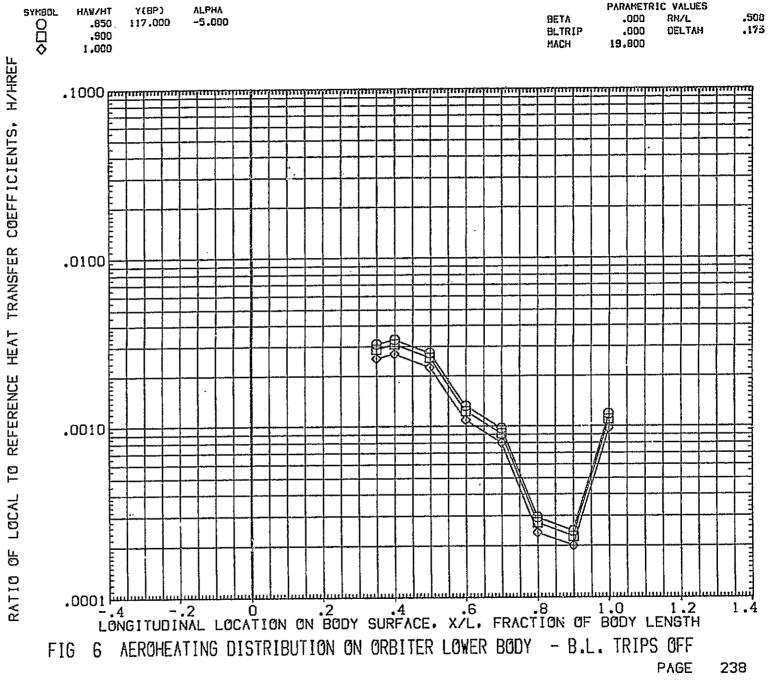






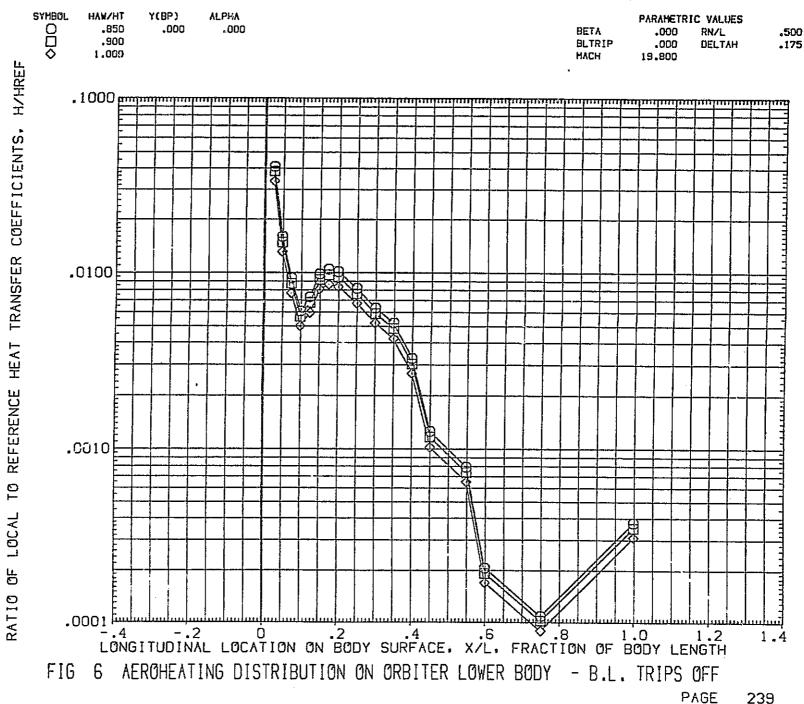


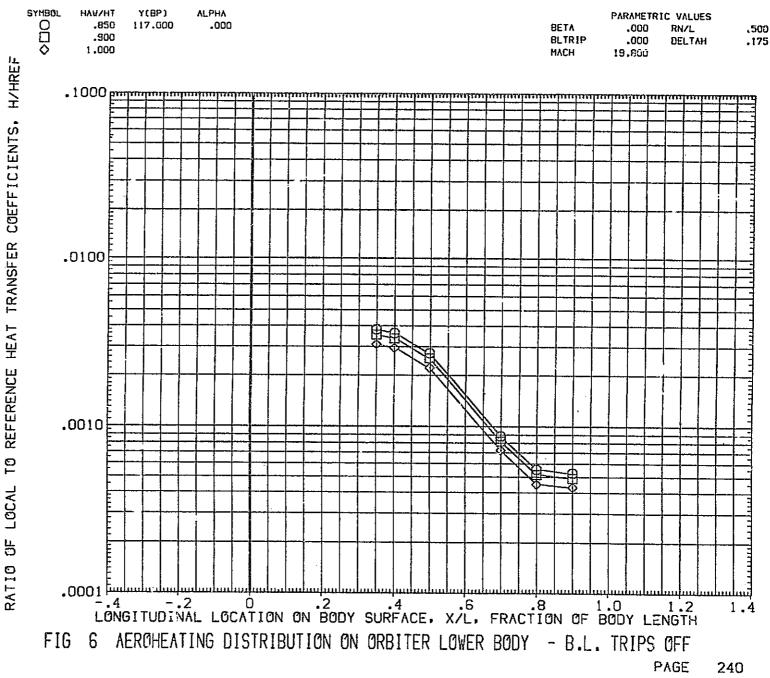
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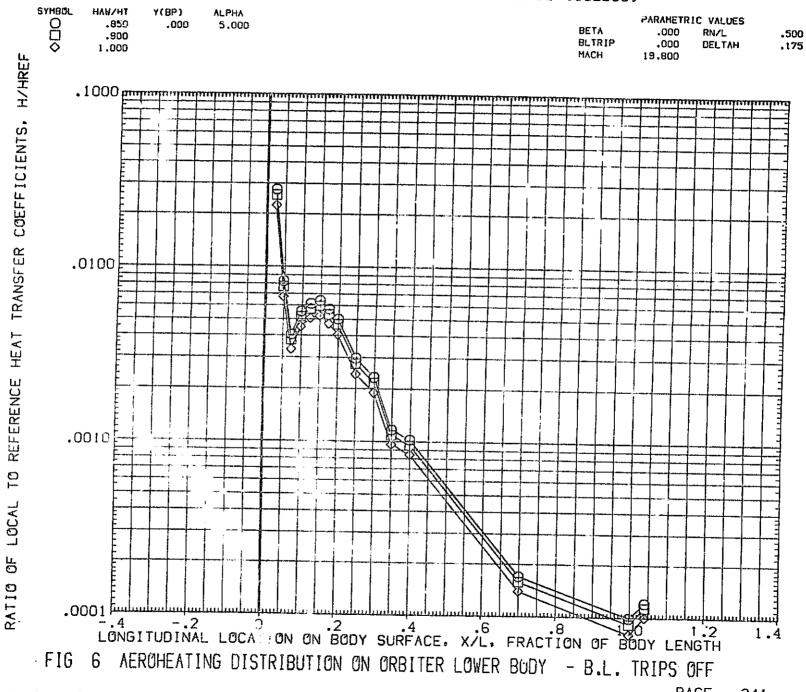


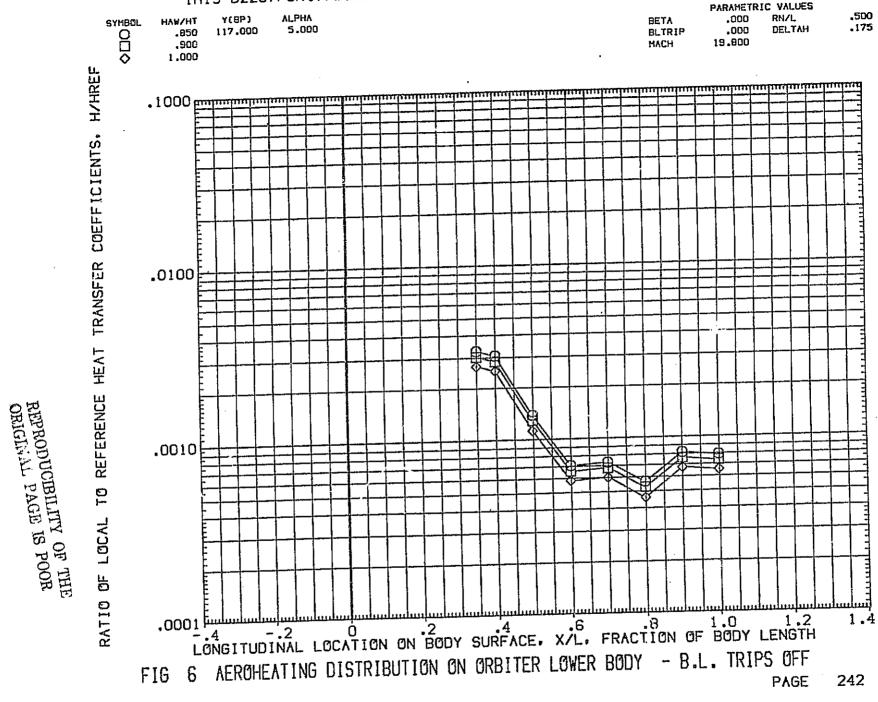


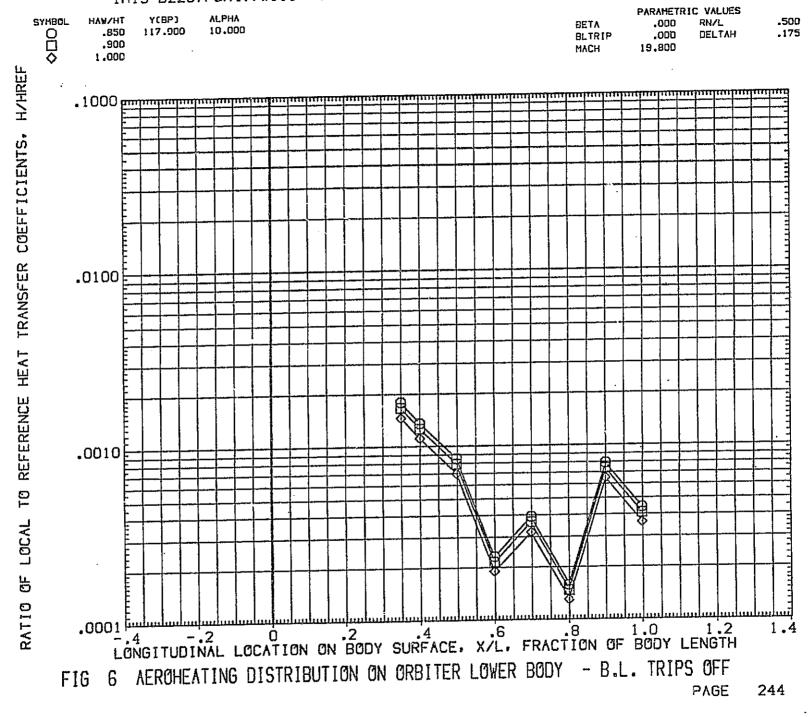


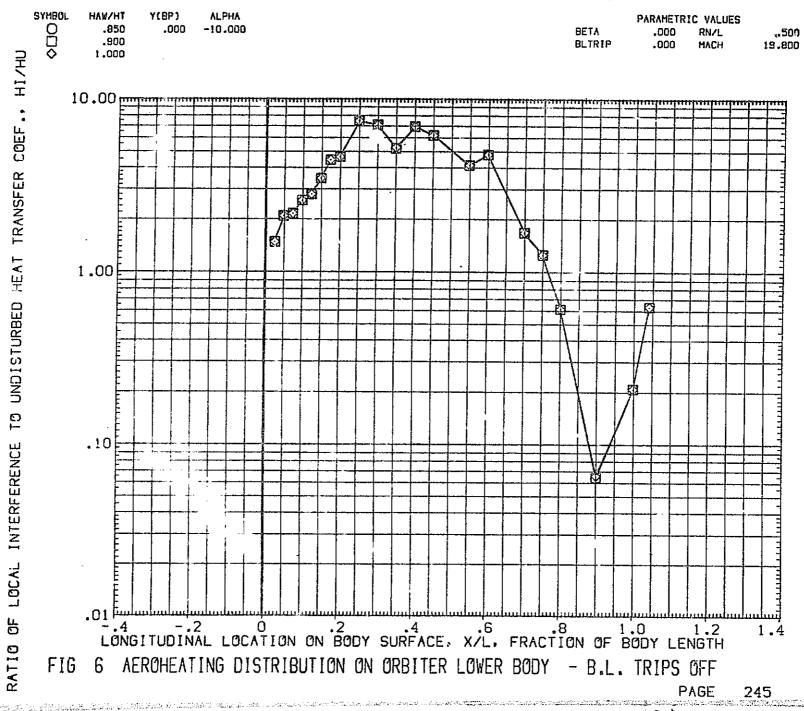


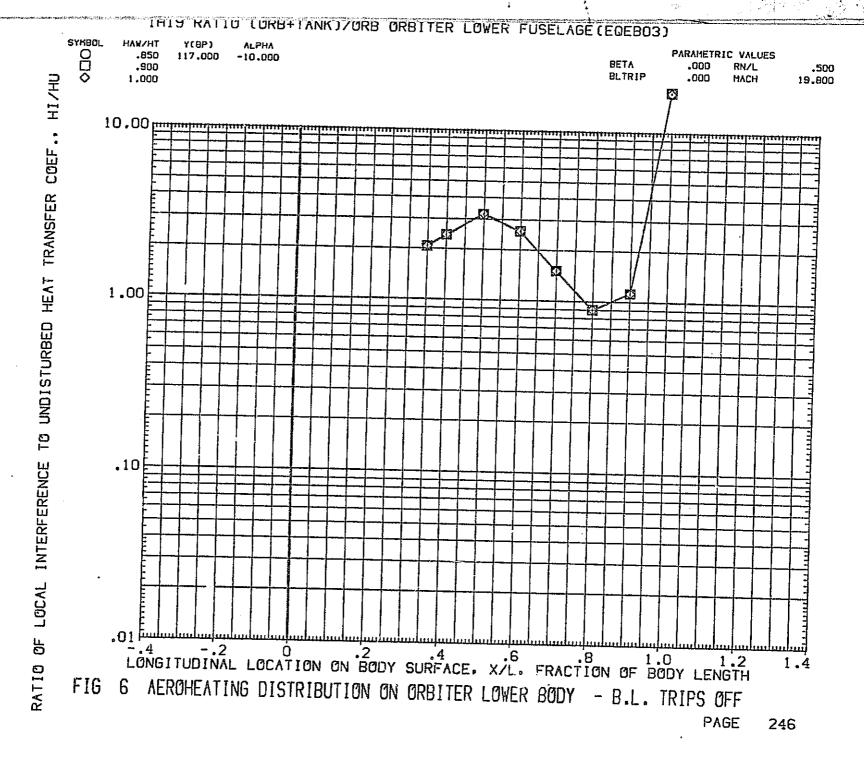


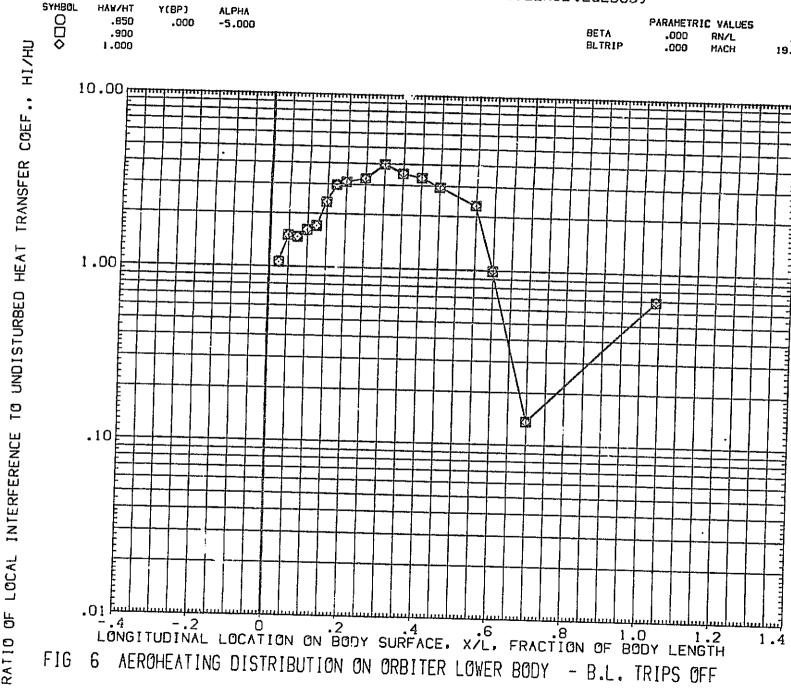




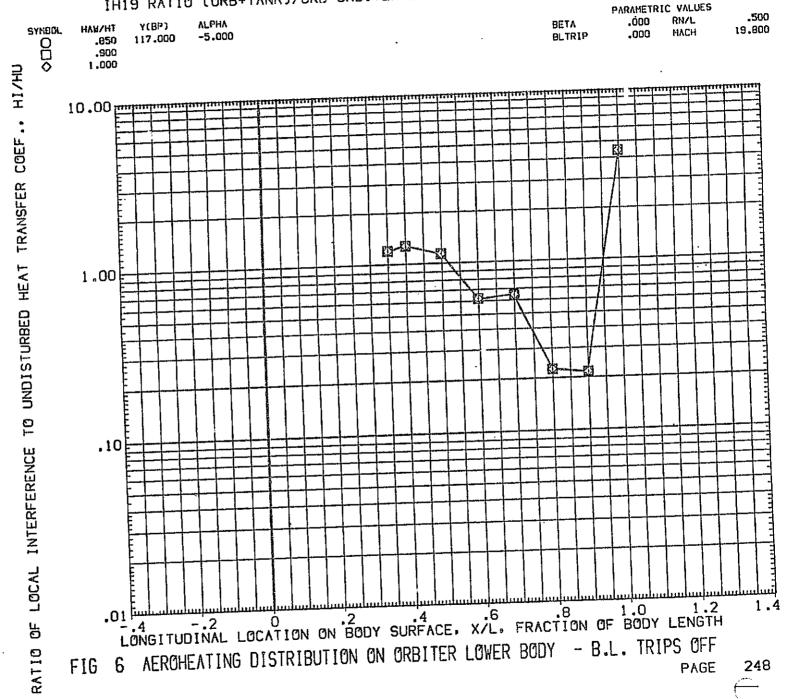






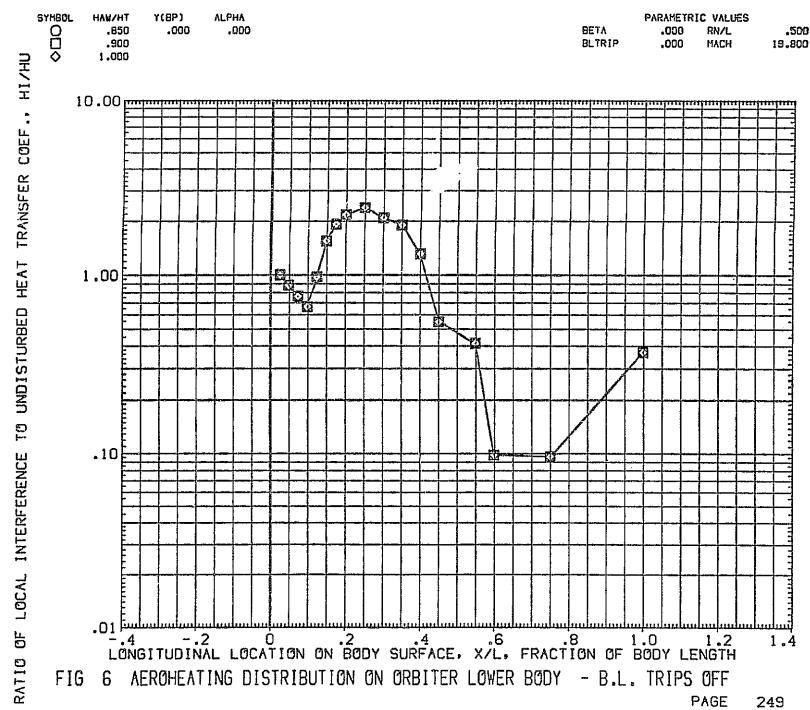


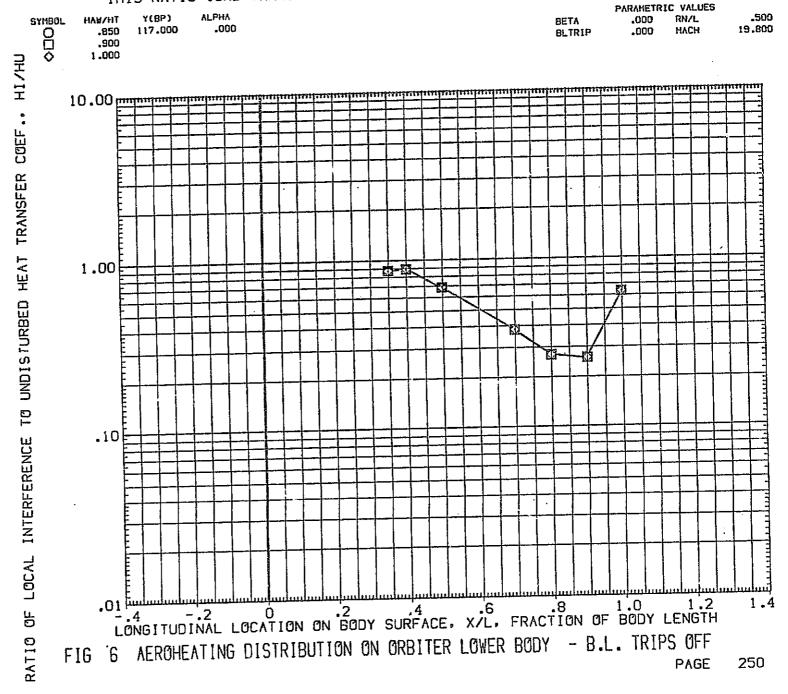
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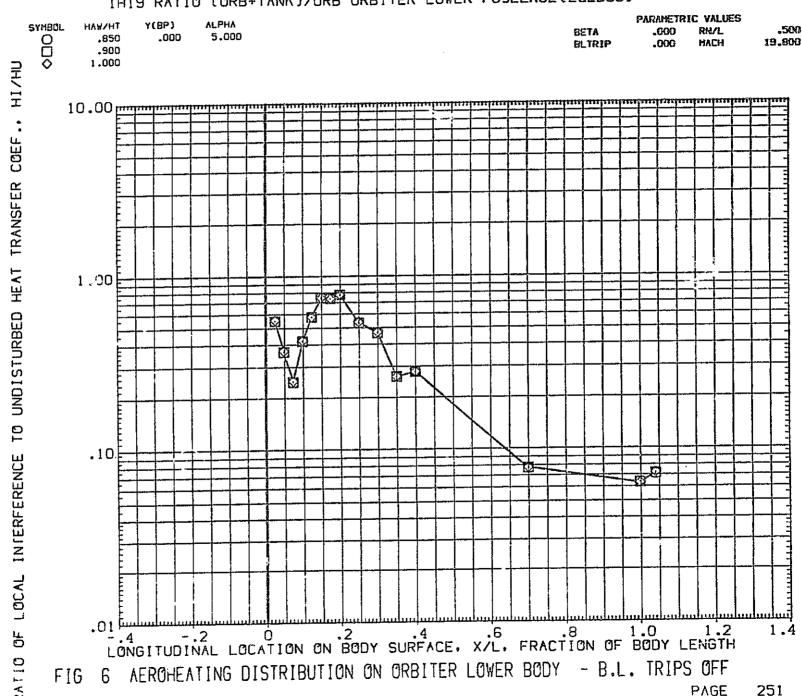




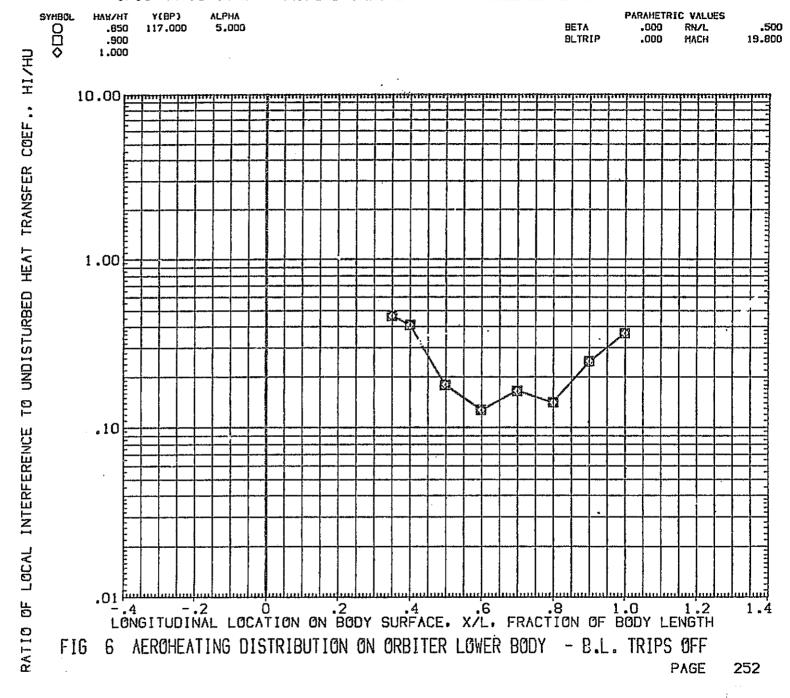




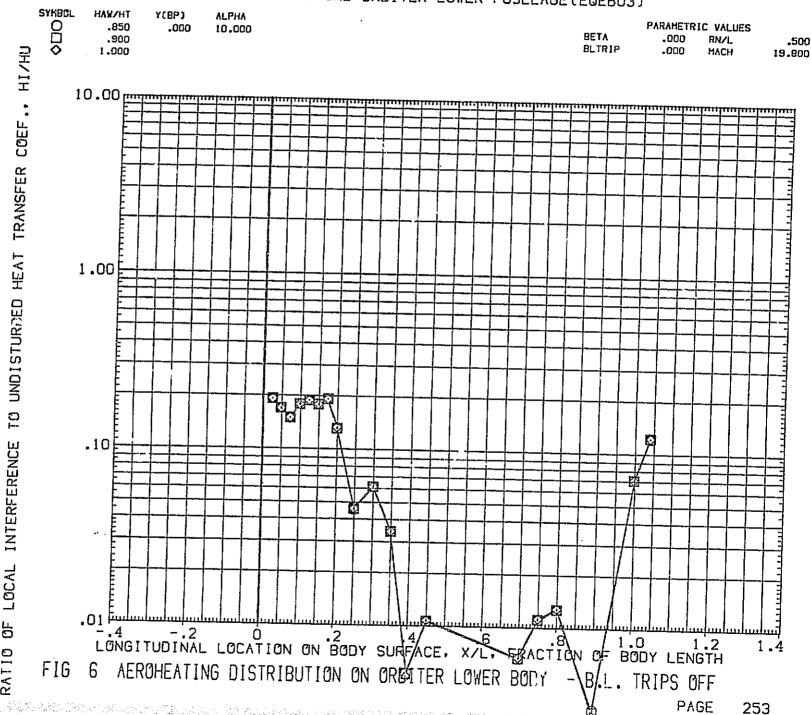


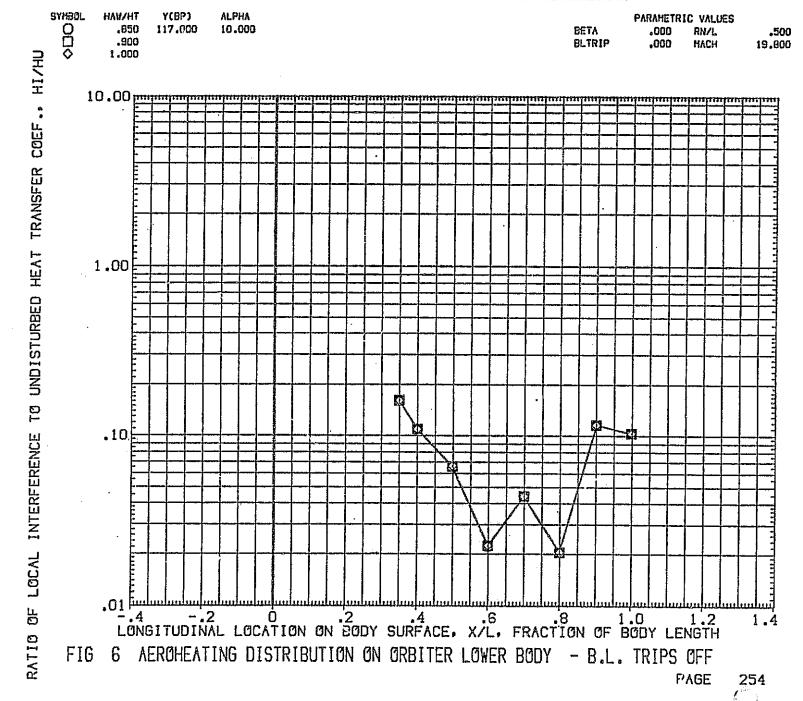


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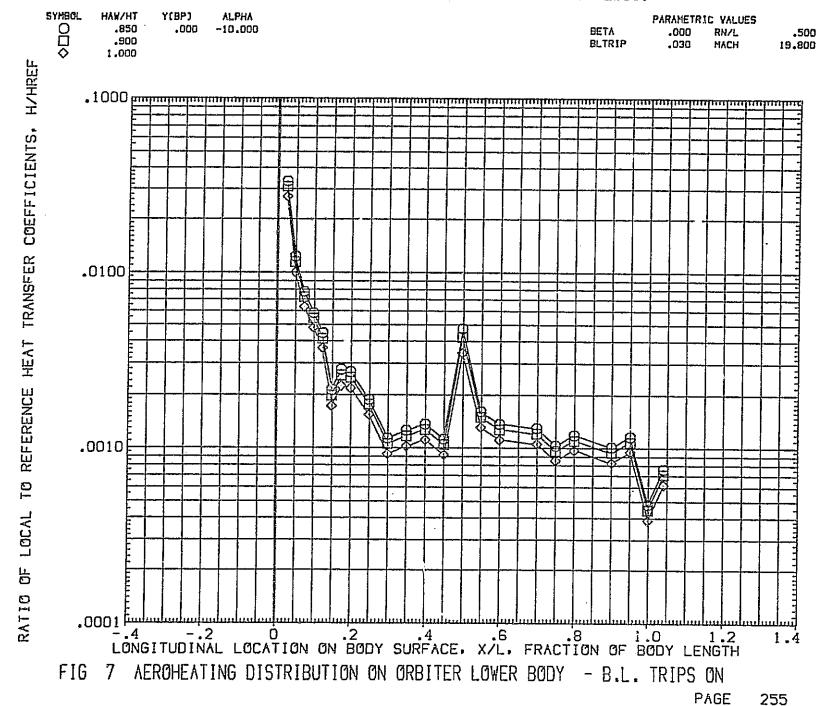






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ORBITER LOWER FUSELAGE (SQEBO5)



LONGITUDINAL LOCATION ON BODY SURFACE, X/L. FRACTION OF BODY LENGTH
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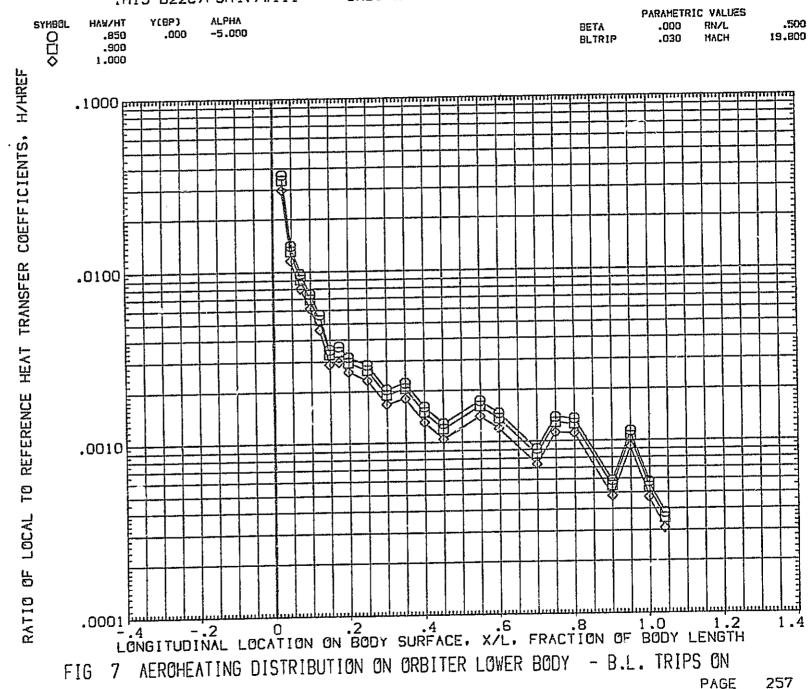
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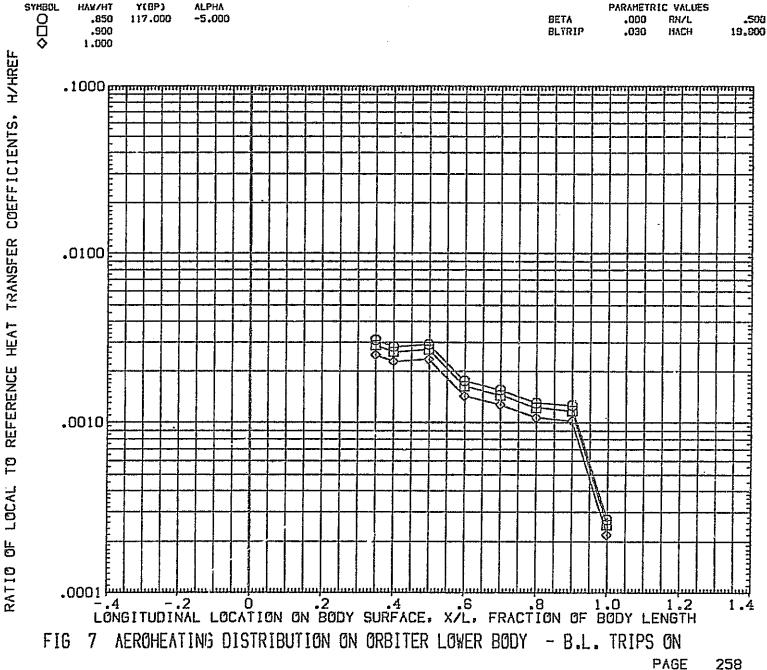
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ORBITER LOWER FUSELAGE (SQEB05)





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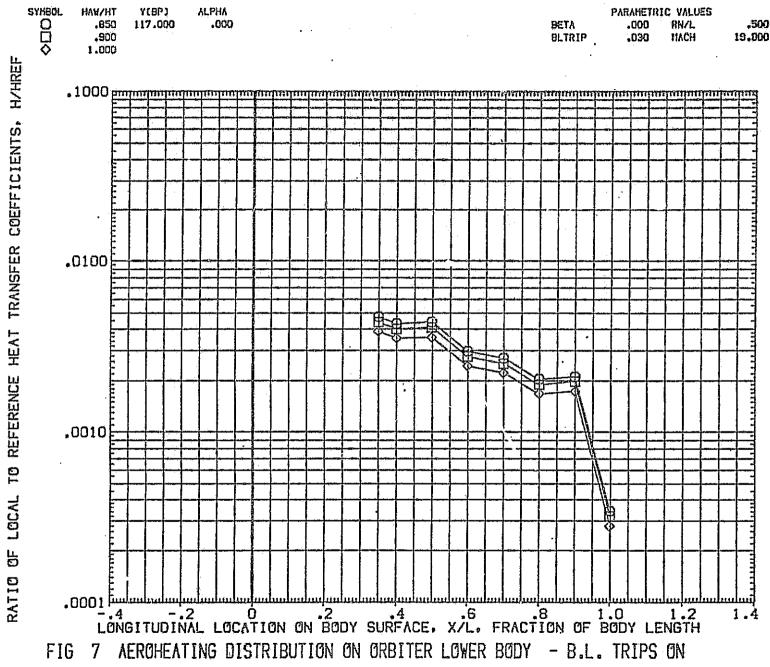


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ORBITER LOWER FUSELAGE (SQEB05)

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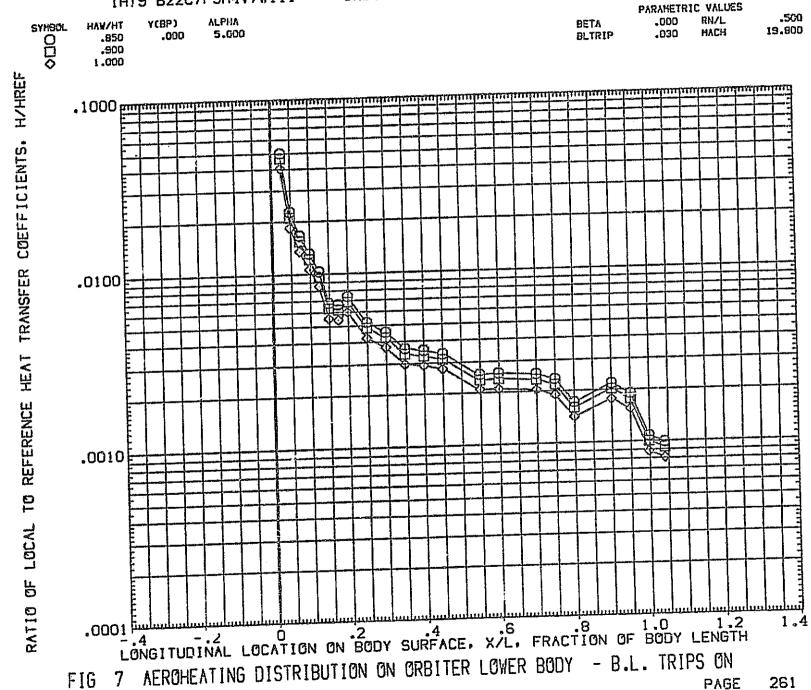
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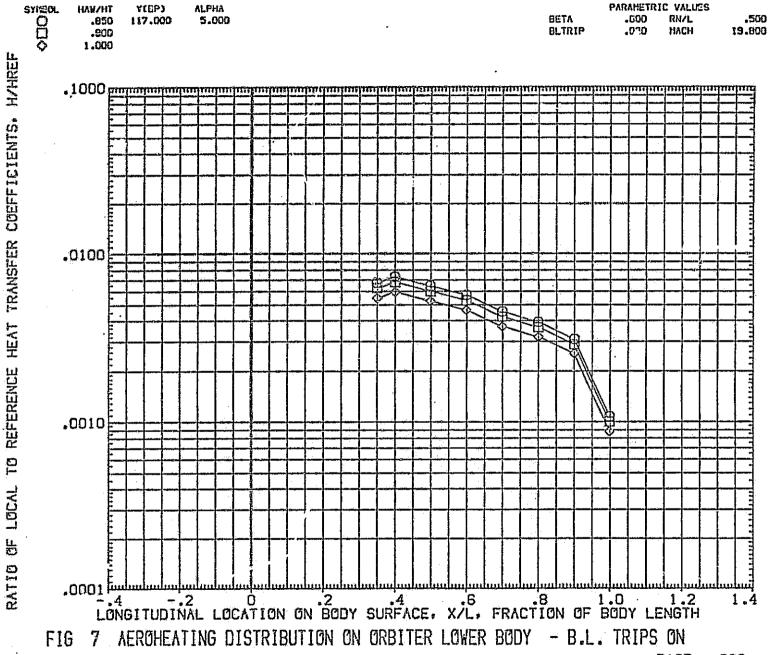


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ORBITER LOWER FUSELAGE (SQEB05)



ORBITER LOWER FUSELAGE (SQEBO5)



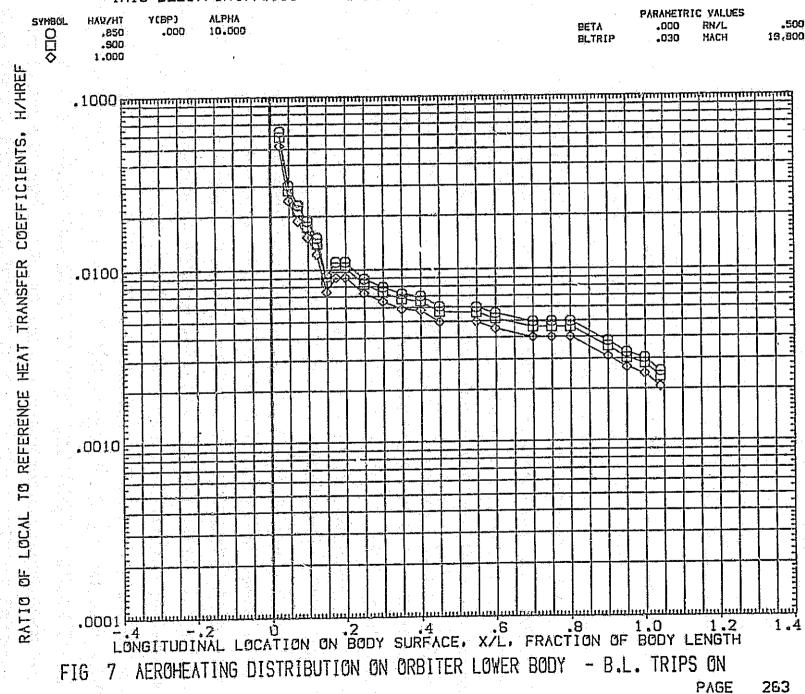
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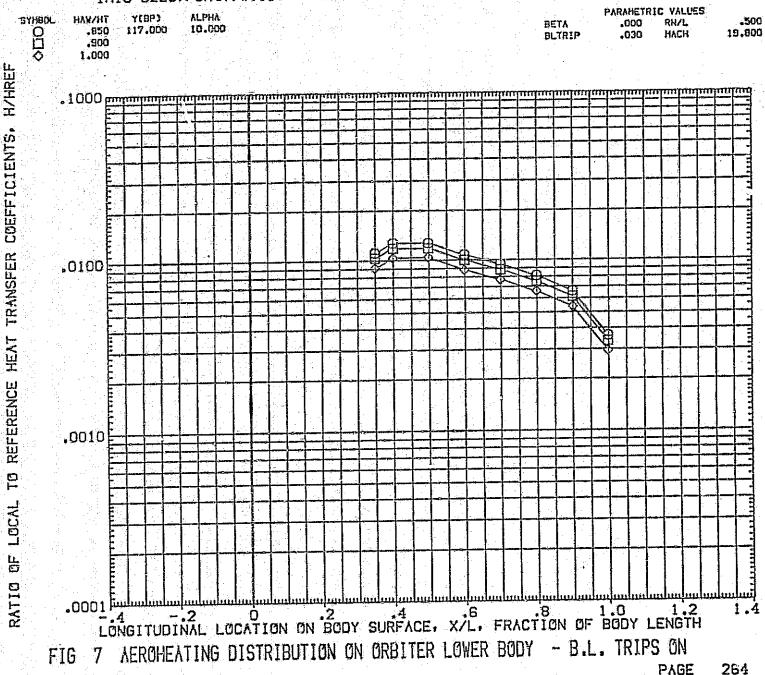
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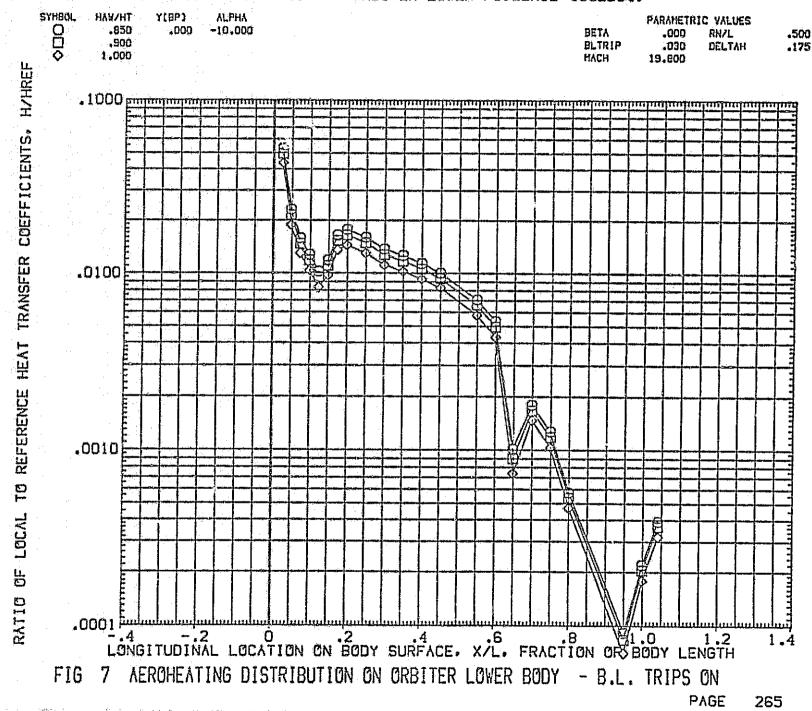
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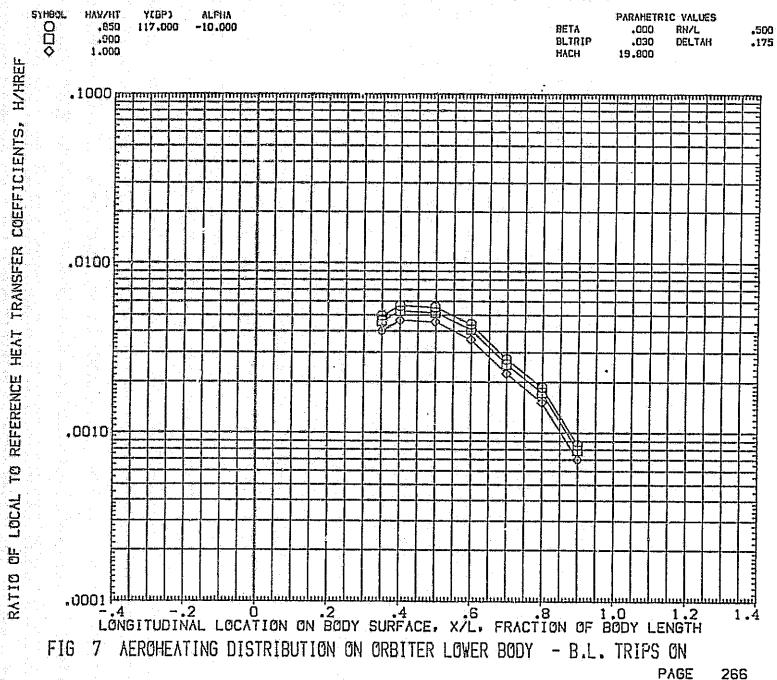
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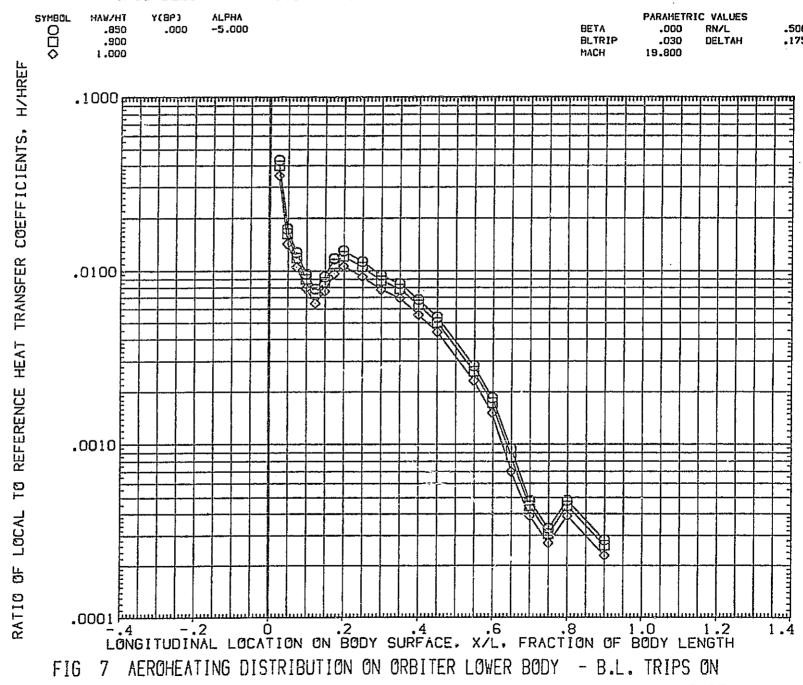
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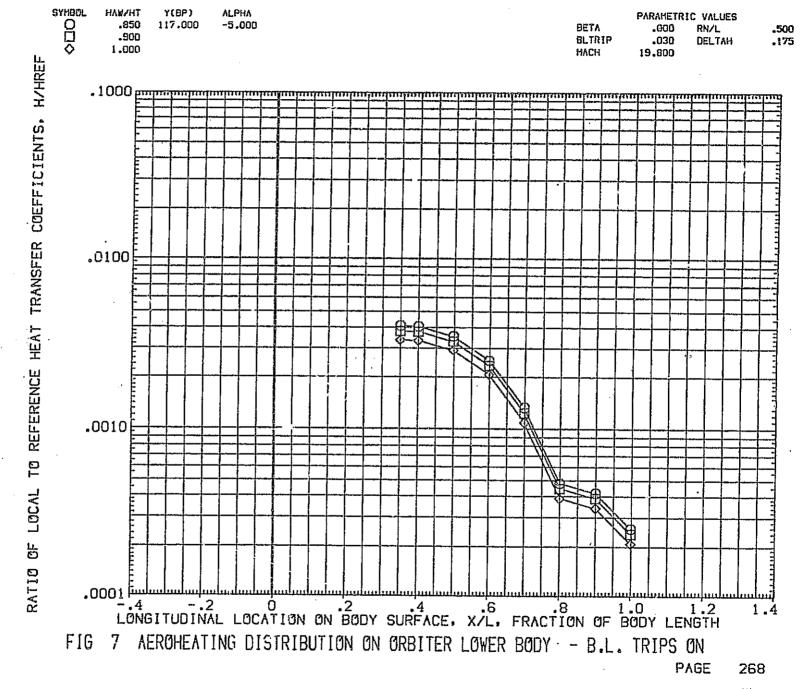




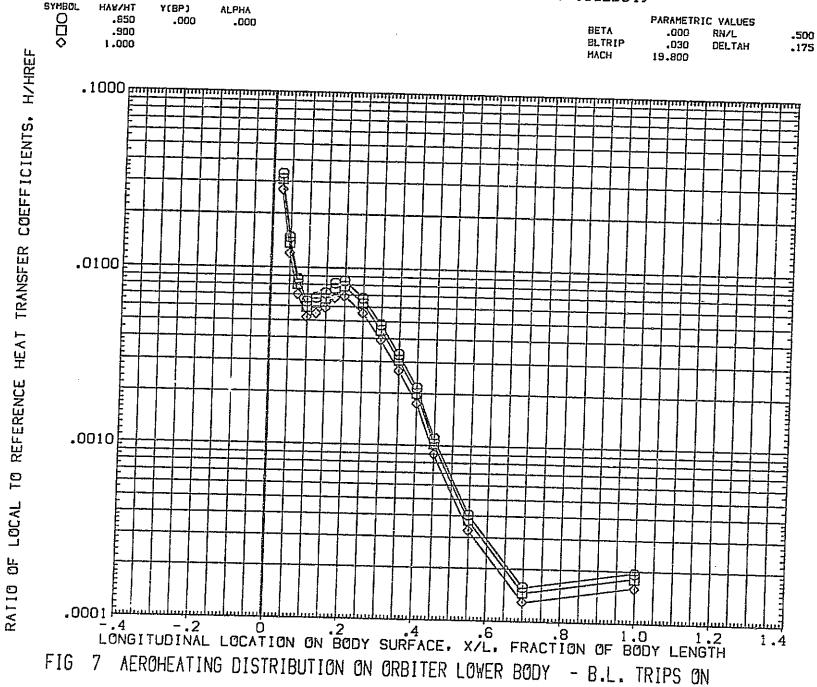


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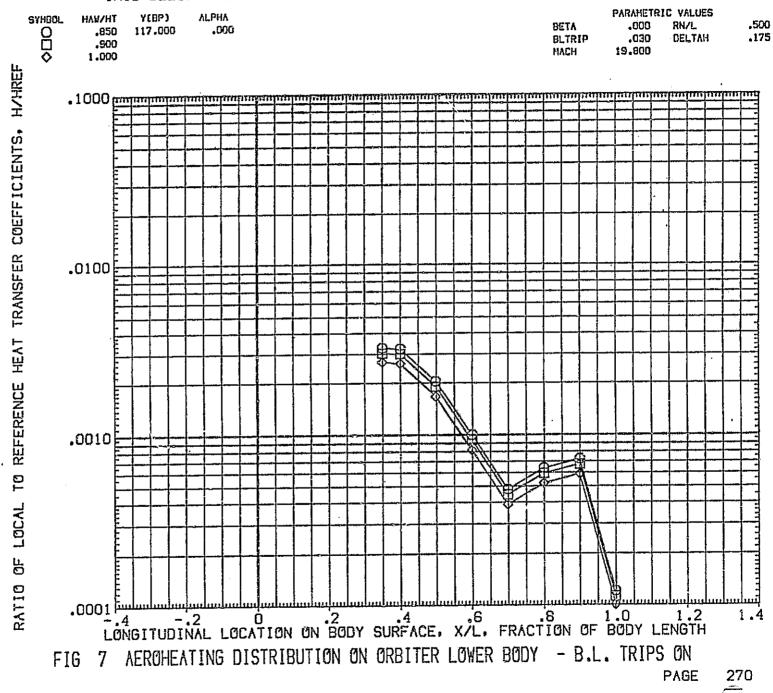
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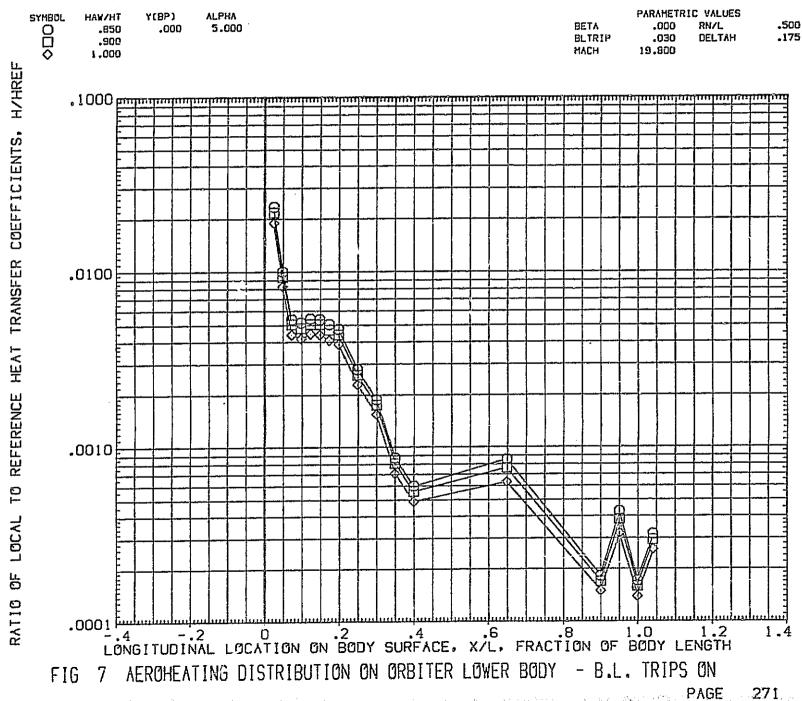


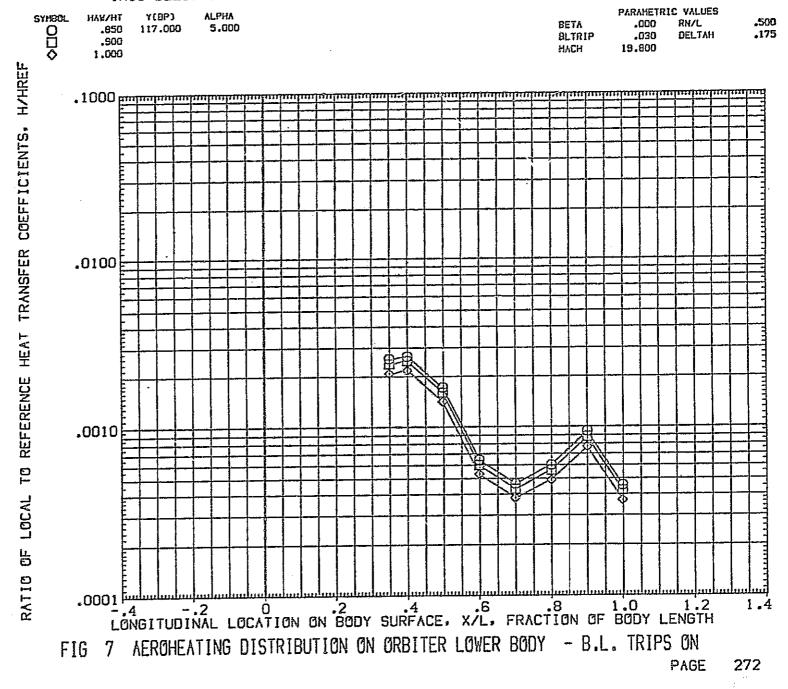




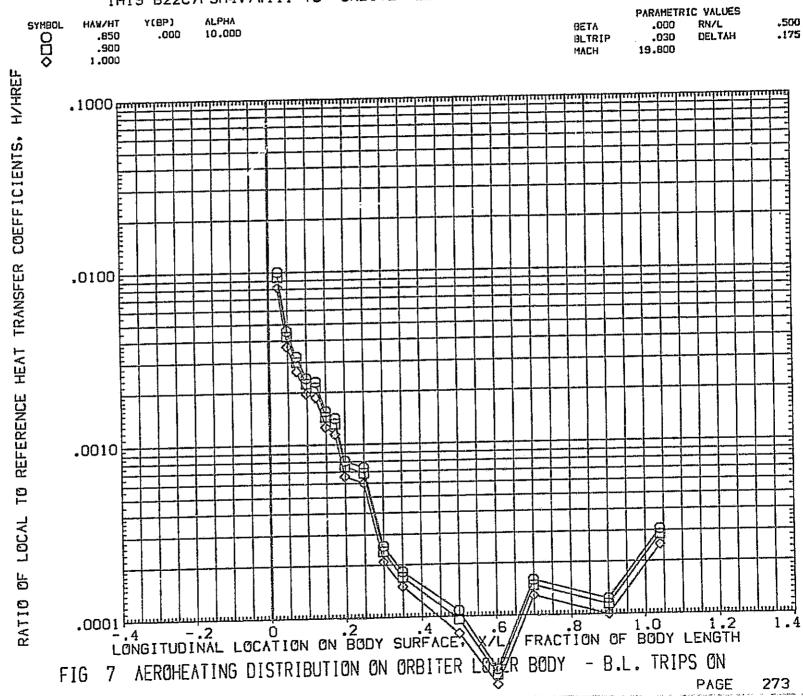
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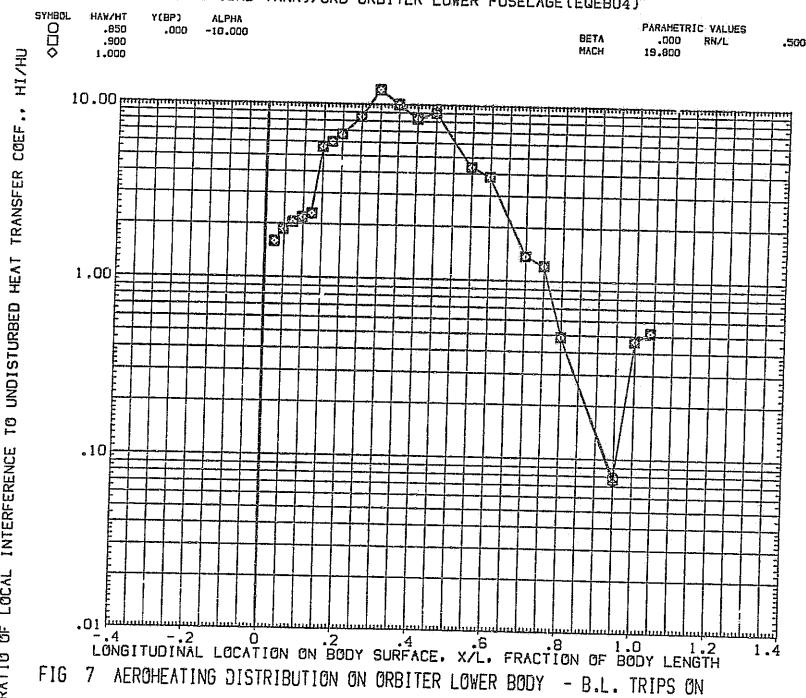






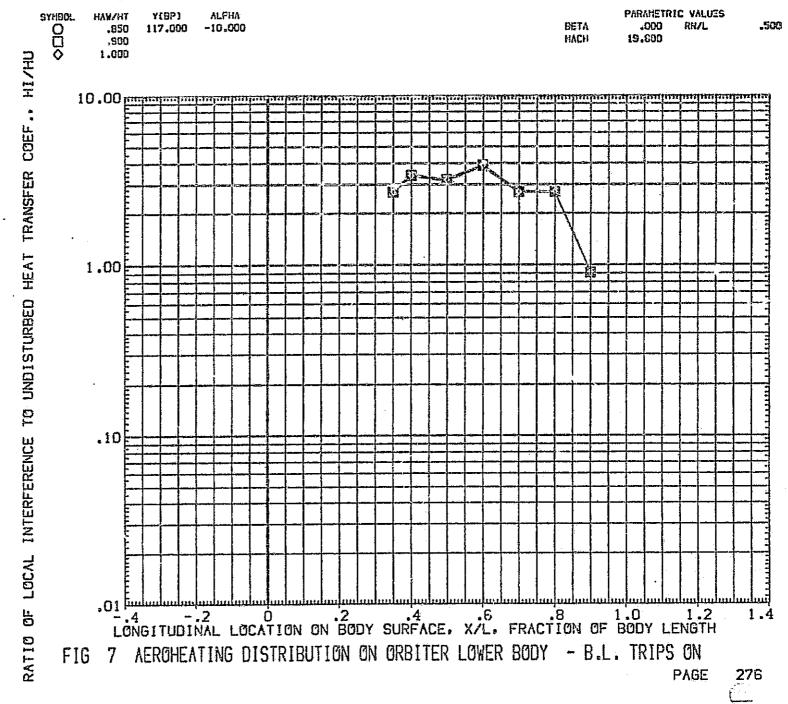


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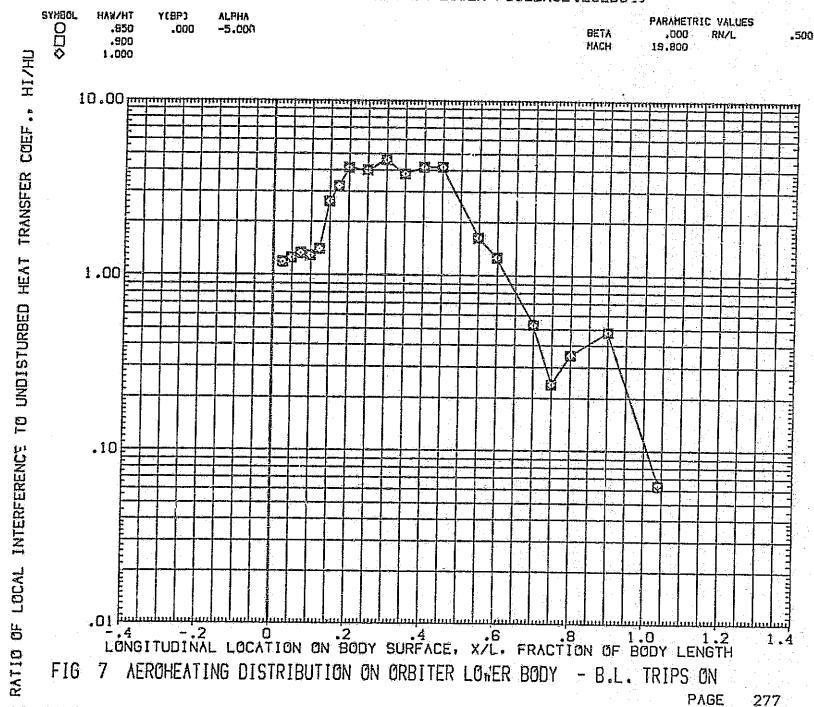


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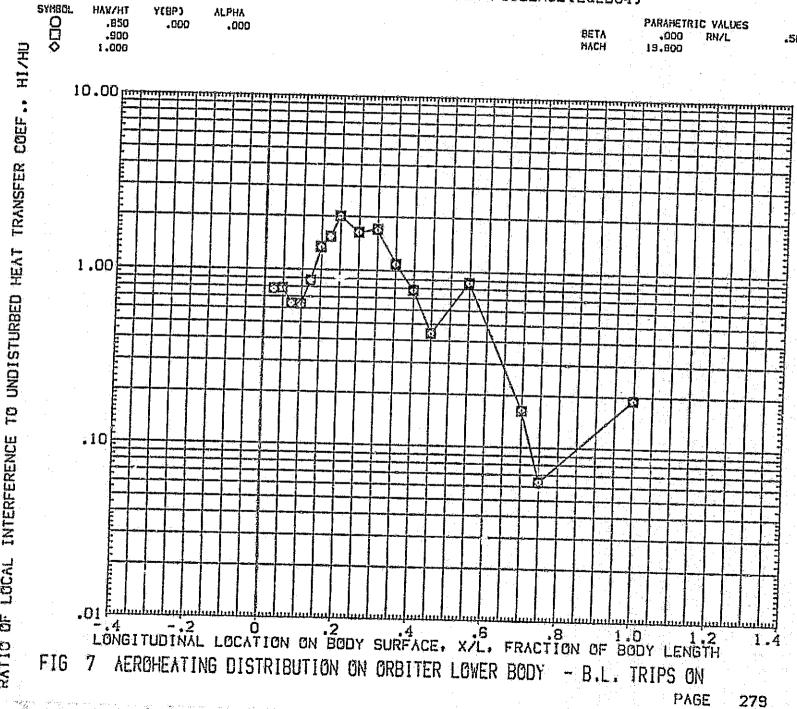


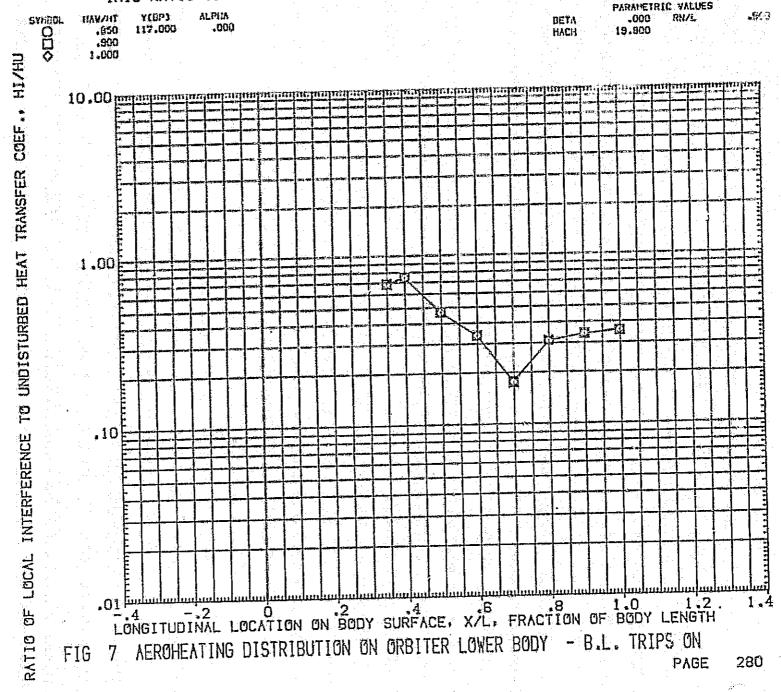


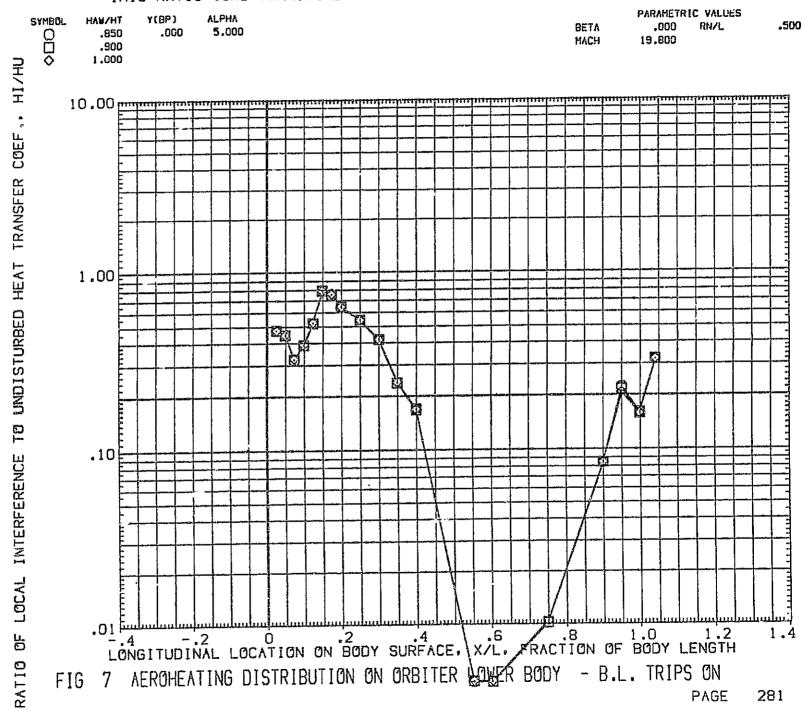
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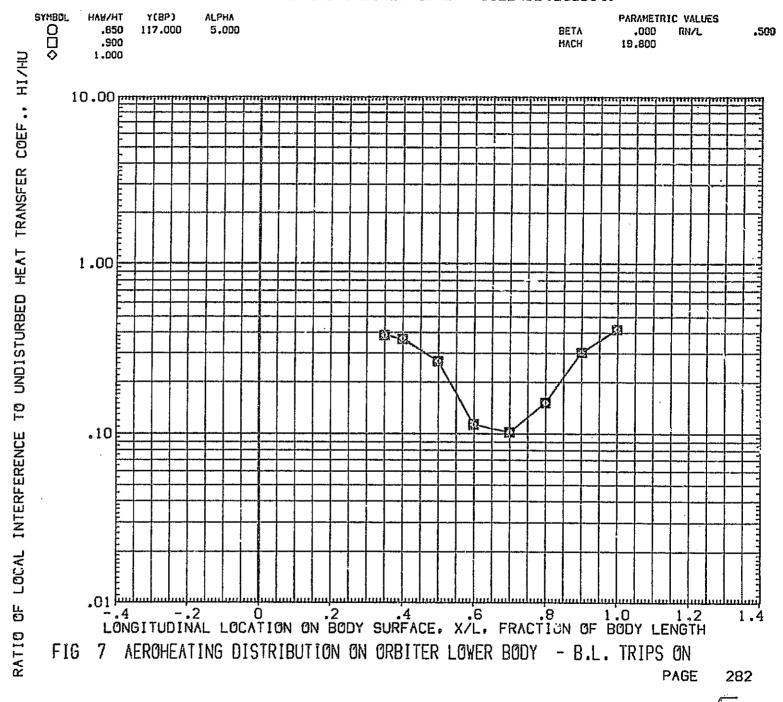
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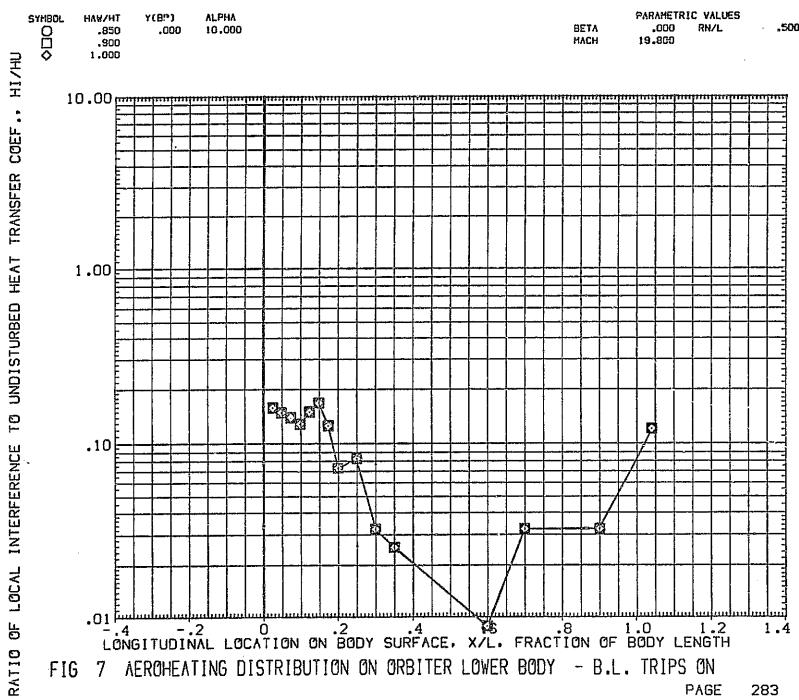
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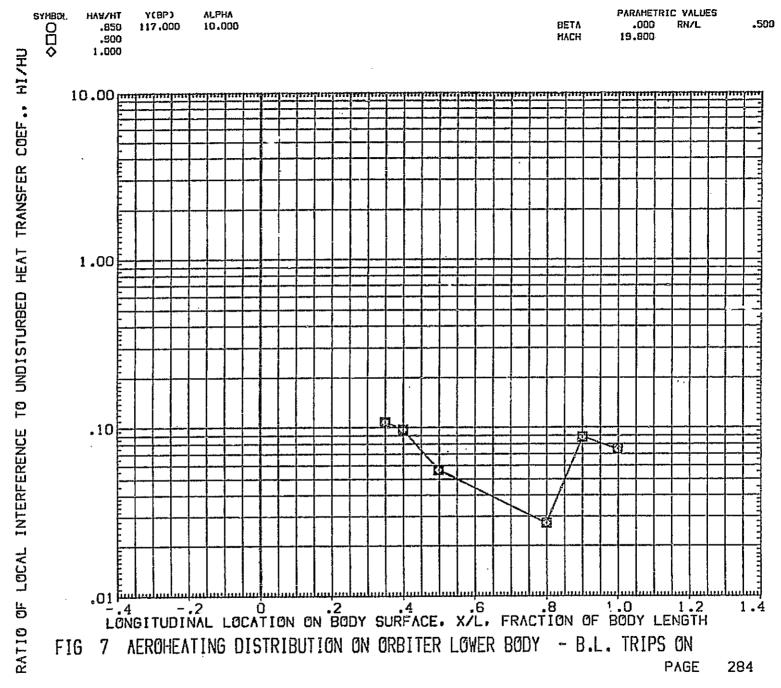






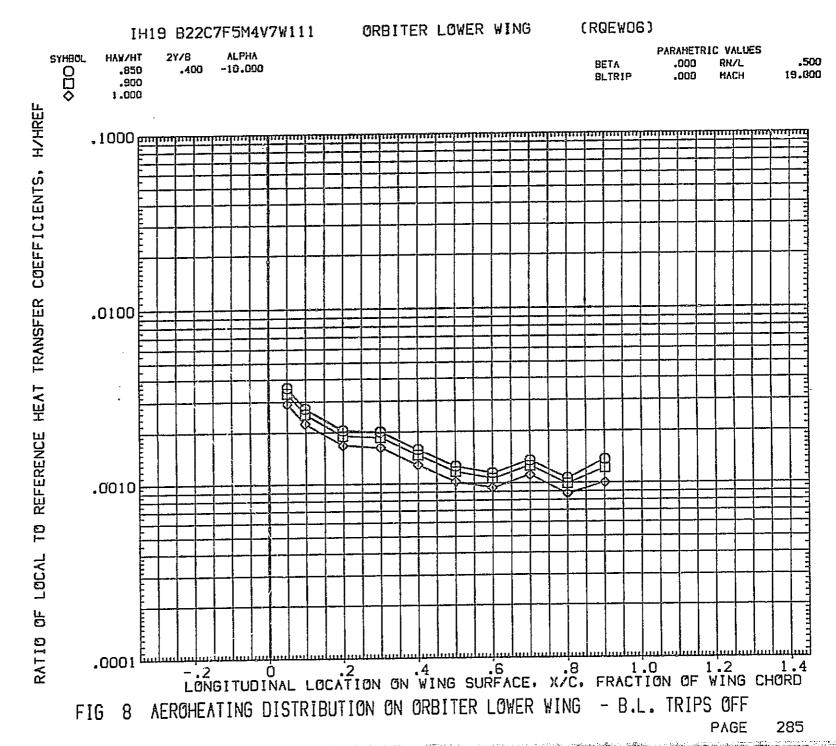


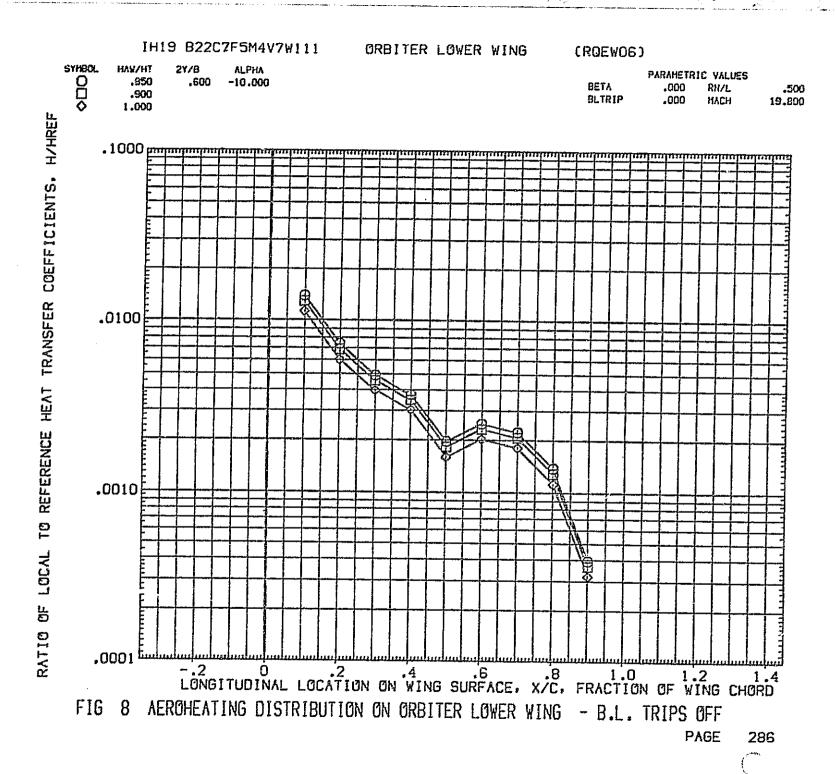














(RQEWO6) ORBITER LOWER WING IH19 B22C7F5M4V7W111 PARAMETRIC VALUES ALPHA -**HAW/HT** BETA .000 RN/L .500 .800 -10.000 .650 MACH 18.900 .000 BLTRIP .900 1.000 COEFFICIENTS, TRANSFER .0100 HEAT REFERENCE .0010 L.OCAL 유 RATIO لسنا 0001. -.2 0 .2 .4 .6 .8 1.0 1.2 1.4 LONGITUDINAL LOCATION ON WING SURFACE, X/C, FRACTION OF WING CHORD AEROHEATING DISTRIBUTION ON ORBITER LOWER WING - B.L. TRIPS OFF

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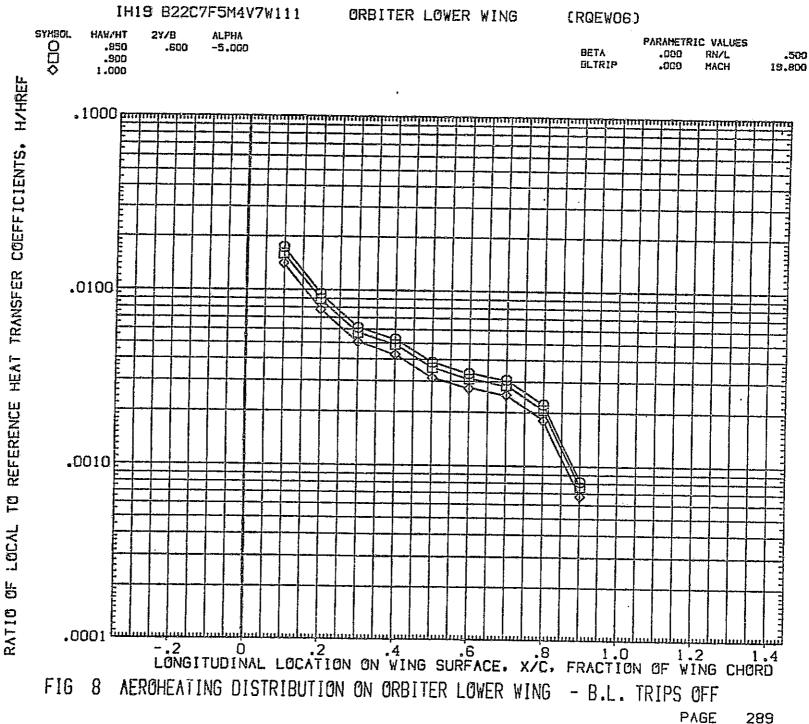
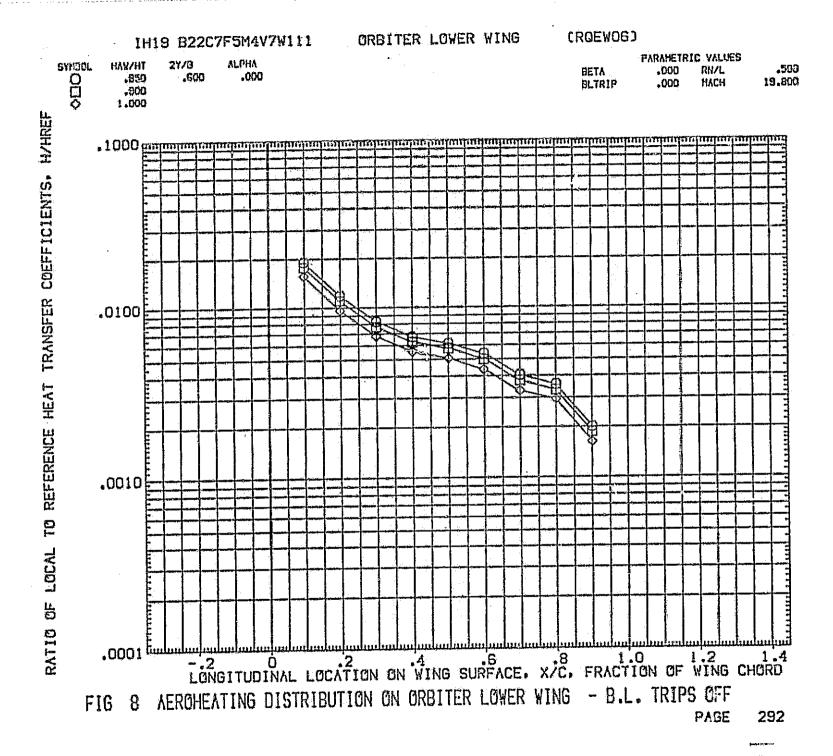


FIG 8 AEROHEATING DISTRIBUTION ON ORBITER LOWER WING - B.L. TRIPS OFF

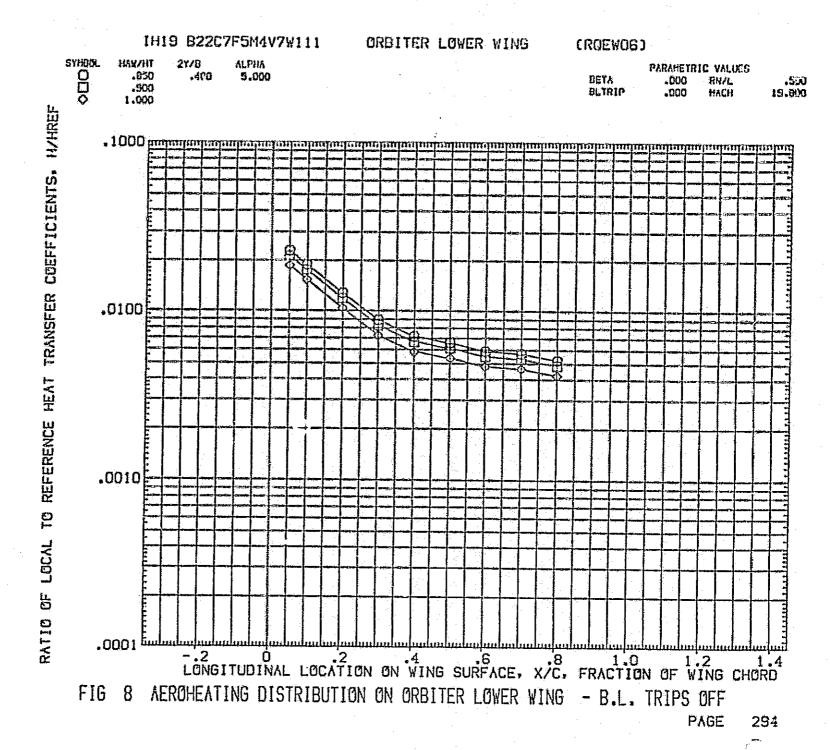
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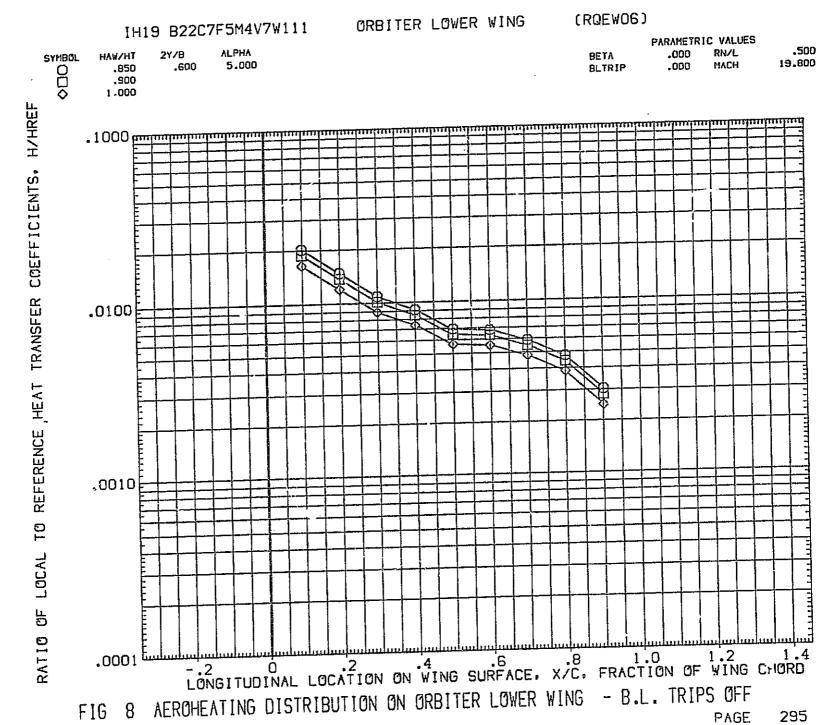
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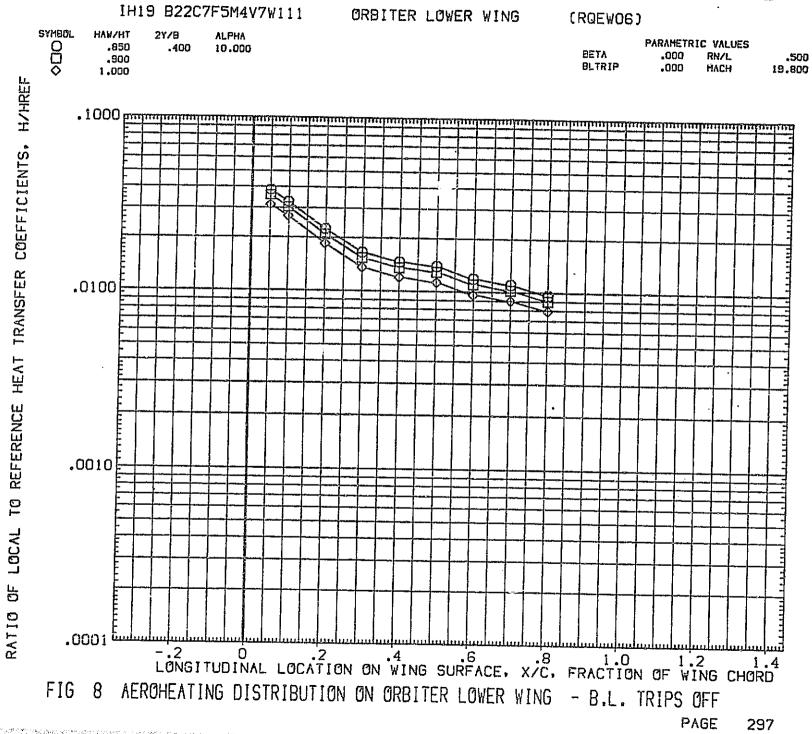


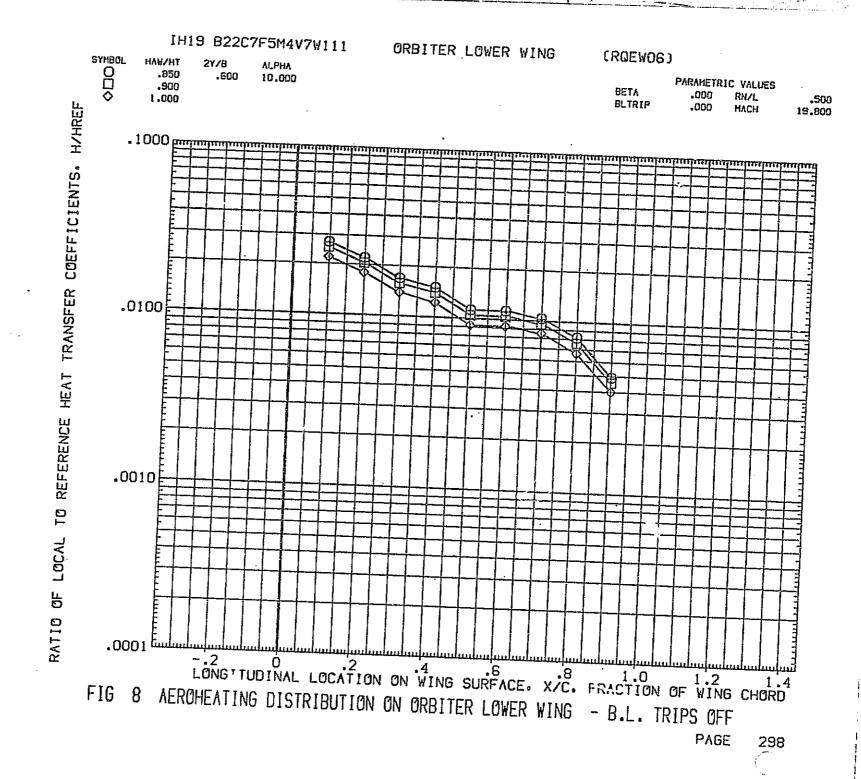
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IH19 B22C7F5M4V7W111 ORBITER LOWER WING (RQEWO6) HVAVHL 2Y/B 000 .850 PARAMETRIC VALUES 5.000 .900 BETA .000 1.000 BLTRIP .000 19.800 H/HREF COEFFICIENTS, TRANSFER .0100 REFERENCE HEAT .0010 سلستا 0001. -.2 O .2 .4 .6 .8 1.0 1.2 1.4 LONGITUDINAL LOCATION ON WING SURFACE, X/C. FRACTION OF WING CHORD FIG 8 AEROHEATING DISTRIBUTION ON ORBITER LOWER WING - B.L. TRIPS OFF PAGE 296











ORBITER LOWER WING (ROEWO6) IH19 B22C7F5M4V7W111 PARAMETRIC VALUES SYMBOL ALPHA RN/L BETA 10.000 .850 19.800 HACH BLTRIP .000 .900 1.000 H/HREF COEFFICIENTS. TRANSFER .0100 REFERENCE HEAT .0010 LOCAL PF -.2 0 .2 .4 .6 .8 1.0 1.2 1.4 LONGITUDINAL LOCATION ON WING SURFACE, X/C, FRACTION OF WING CHORD نستا 2000ء FIG 8 AEROHEATING DISTRIBUTION ON ORBITER LOWER WING - B.L. TRIPS OFF

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(RQEWO3)

IH19 B22C7F5M4V7W111 T8 ORBITER LOWER WING

PARAMETRIC VALUES SYMBOL HAWAHT 000 .850 -10.009 BETA .000 RN/L -500 BLTRIP .000 DELTAH .175 .900 MACH 19.800 1.000

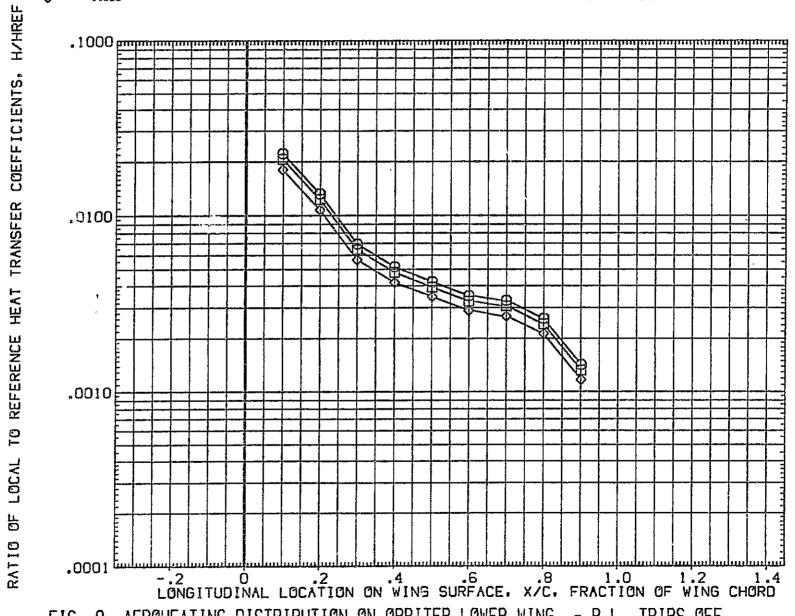
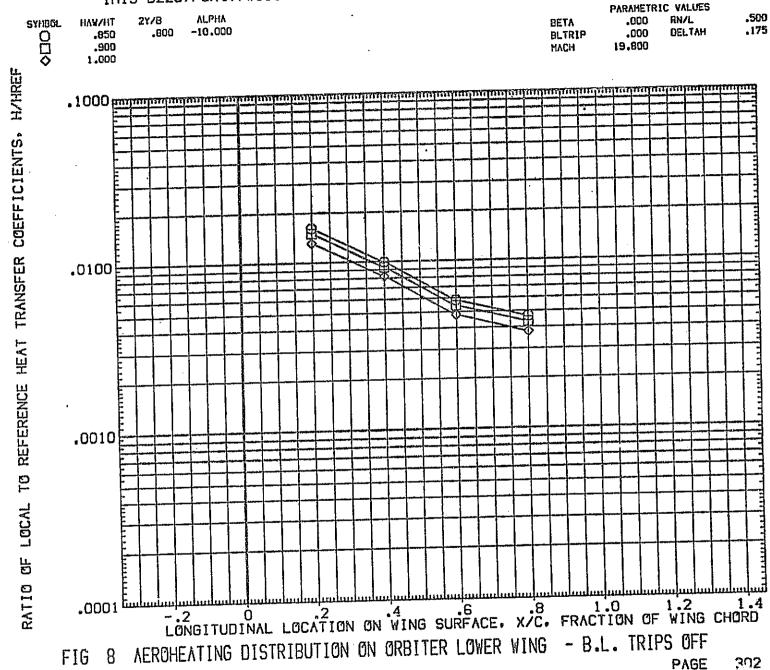


FIG 8 AEROHEATING DISTRIBUTION ON ORBITER LOWER WING - B.L. TRIPS OFF



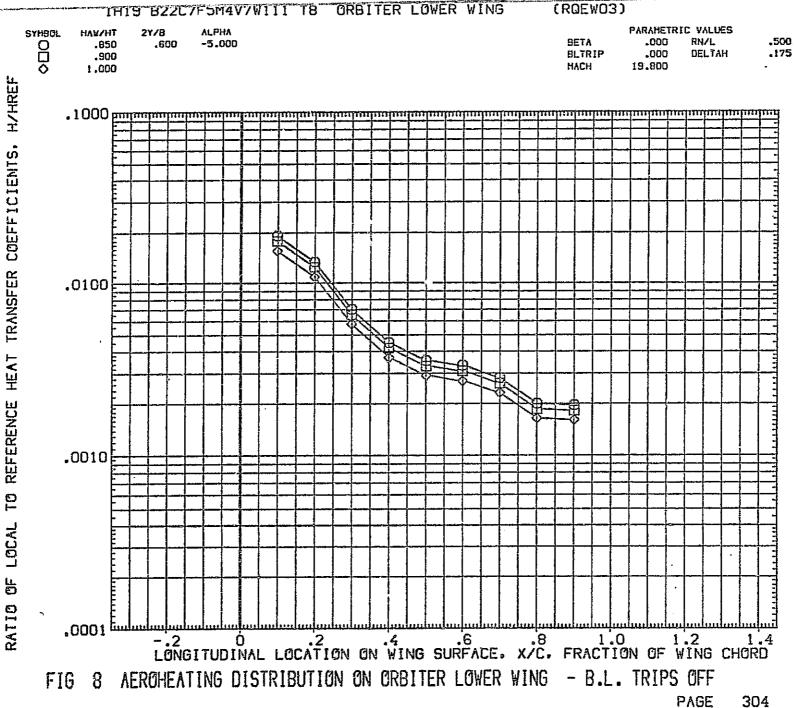
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IH19 B22C7F5M4V7W111 T8 ORBITER LOWER WING (RQEWO3) SYMBOL HAW/HT **ALPHA** PARAMETRIC VALUES 000 .850 -5.000 BETA .005 RN/L .500 .900 BLTRIP .000 DELTAH .175 1.000 MACH 19.900 COEFFICIENTS, TRANSFER .0100 REFERENCE HEAT .0010 T 0 LOCAL 딤 RATIO -.2 0 .2 .4 .6 .8 1.0 1.2 1.4 LONGITUDINAL LOCATION ON WING SURFACE, X/C. FRACTION OF WING CHORD FIG 8 AEROHEATING DISTRIBUTION ON ORBITER LOWER WING - B.L. TRIPS OFF

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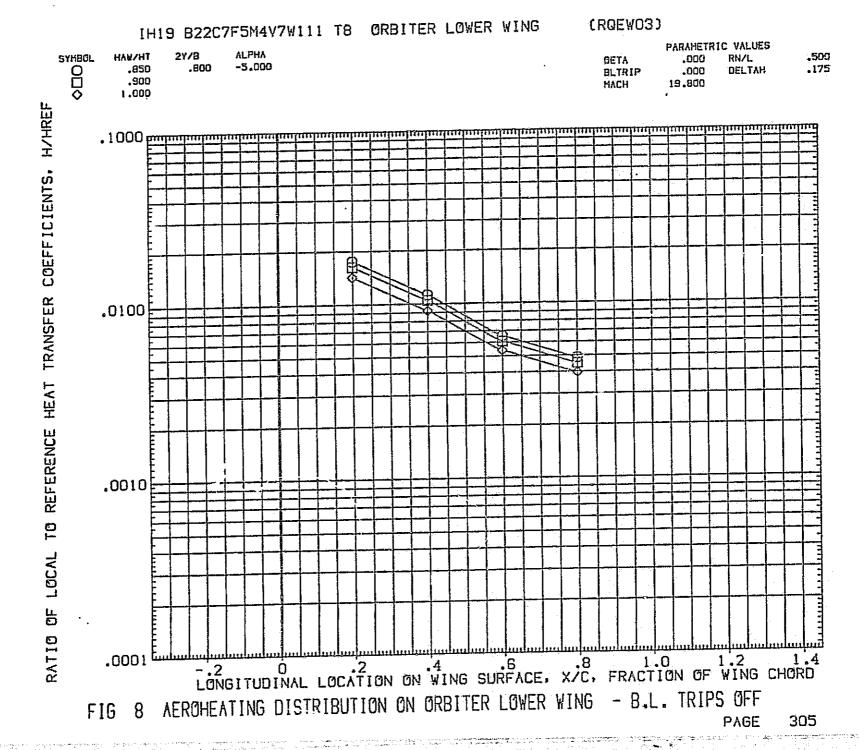
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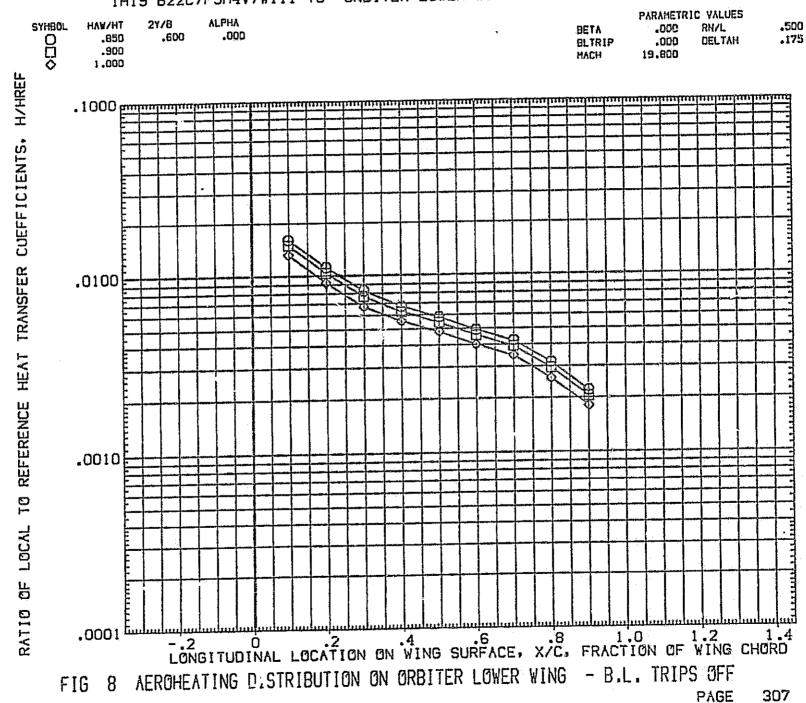


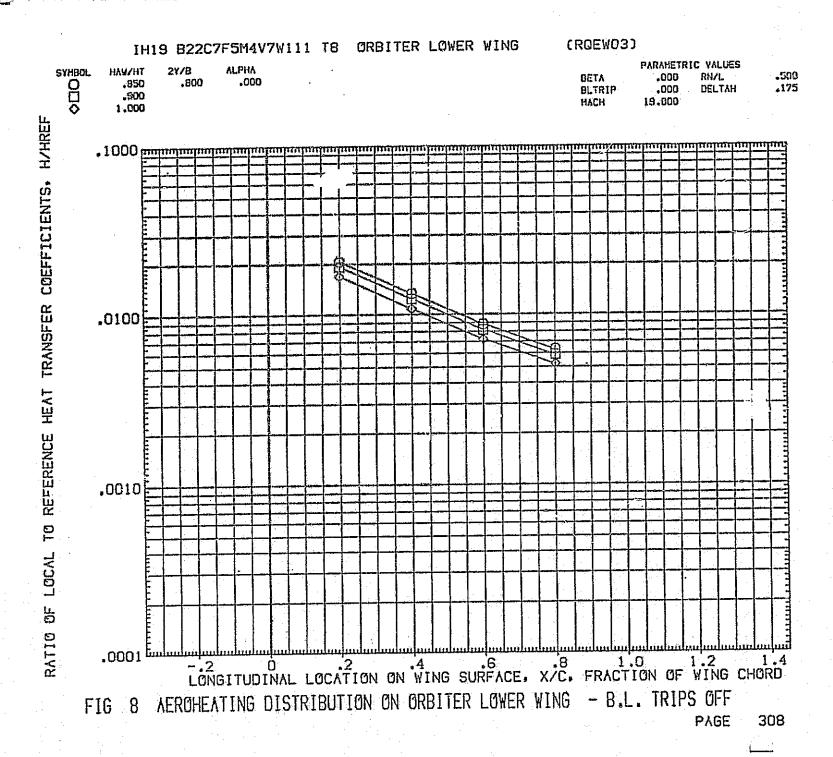




IH19 B22C7F5M4V7W111 TB ORBITER LOWER WING

(RQEWO3)









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IH19 B22C7F5M4V7W111 T8 ORBITER LOWER WING (RQEW03) PARAMETRIC VALUES **ALPHA** SYMBOL HAW/HT RN/L .500 .000 BEIA 000 5.000 .850 .400 .175 DELTAH BLTRIP .000 .900 MACH 19.800 1.000 COEFFICIENTS. .0100 REFERENCE HEAT .0010 LOCAL P F .0001 tr -.2 0 .2 .4 .6 .8 1.0 1.2 1.4 LONGITUDINAL LOCATION ON WING SURFACE, X/C, FRACTION OF WING CHORD AEROHEATING DISTRIBUTION ON ORBITER LOWER WING - B.L. TRIPS OFF

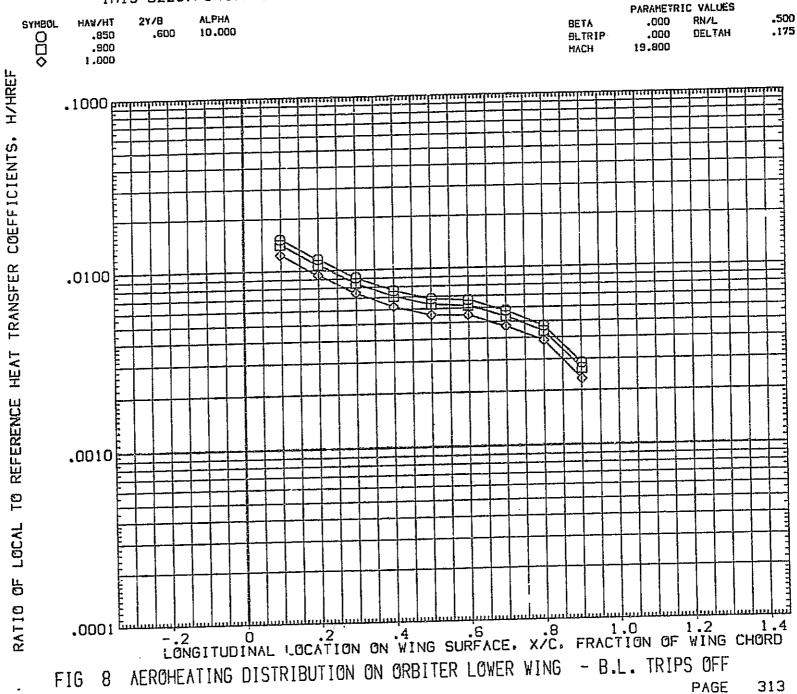


(RQEWO3) IH19 B22C7F5M4V7W111 T8 ORBITER LOWER WING PARAMETRIC VALUES SYMBOL HAW/HT .500 BETA RN/L 000 .850 5.000 .175 .000 DELTAH BLTRIP .900 HACH 19.800 1,000 H/HREF COEFFICIENTS, REFERENCE HEAT TRANSFER .0100 .0010 LOCAL HO -.2 O .2 .4 .6 .8 1.0 1.2 1.4 LONGITUDINAL LUCATION ON WING SURFACE, X/C. FRACTION OF WING CHORD FIG 8 AEROHEATING DISTRIBUTION ON ORBITER LOWER WING - B.L. TRIPS OFF

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IH19 B22C7F5M4V7W111 T8 ORBITER LOWER WING (RQEW03)

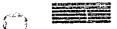




IHI9 RATIO (ORB+TANK)/ORB ORBITER LOWER WING

(DQEWO3)

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IH19 RATIO (ORB+TANK)/ORB ORBITER LOWER WING (DOEWO3) PARAMETRIC VALUES ALPHA HAHAHT SYNGOL .000 BETA -10.000 000 .850 HACH BLTRIP .000 .900 1.000 HI/HU TRANSFER COEF. TO UNDISTURBED HEAT 1.00 .10 LOCAL INTERFERENCE -.2 0 .2 .4 .6 .8 1.0 1.2 1.4 LONGITUDINAL LOCATION ON WING SURFACE, X/C, FRACTION OF WING CHORD 뭐 FIG 8 AEROHEATING DISTRIBUTION ON ORBITER LOWER WING - B.L. TKIPS OFF 317

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(DQEW03) IH19 RATIO (ORB+TANK)/ORB ORBITER LOWER WING PARAMETRIC VALUES 2Y/8 THYNAH SYMBOL .500 .000 RN/L BETA 000 .850 .600 -5.000 HACH 19,900 BLTRIP .000 .900 1.000 TRANSFER COEF. TO UNDISTURBED HEAT 1.00 .10

-.2 0 .2 .4 .6 .8 1.0 1.2 1.4 LONGITUDINAL LOCATION ON WING SURFACE, X/C, FRACTION OF WING CHORD AEROHEATING DISTRIBUTION ON ORBITER LOWER WING FIG 8 PAGE

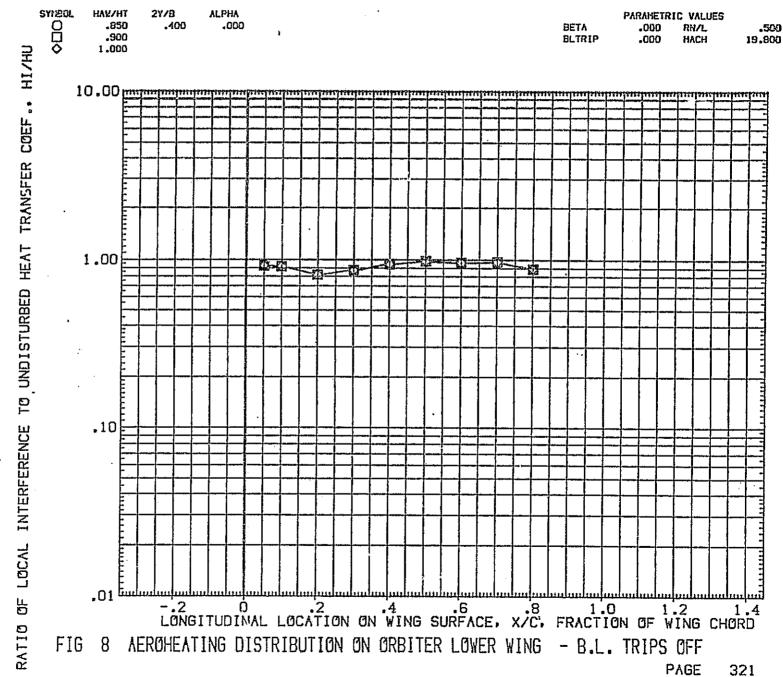
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IH19 RATIO (ORB+TANK)/ORB ORBITER LOWER WING CDOEMOSO PARAHETRIC VALUES 2Y/B .800 **ALPHA** THVAYH .000 RN/L SYHBOL BETA -5.000 000 .850 HACH BLTRIP .000 .900 1,000 HI/HU TO UNDISTURBED HEAT TRANSFER COEF. 1.00 .10 INTERFERENCE LOCAL -.2 0 .2 .4 .6 .8 1.0 1.2 1.4 LONGITUDINAL LOCATION ON WING SURFACE, X/C, FRACTION OF WING CHORD FIG 8 AEROHEATING DISTRIBUTION ON ORBITER LOWER WING - B.L. TRIPS OFF

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IH19 RATIO (ORB+TANK)/ORB ORBITER LOWER WING

(DOEA03)

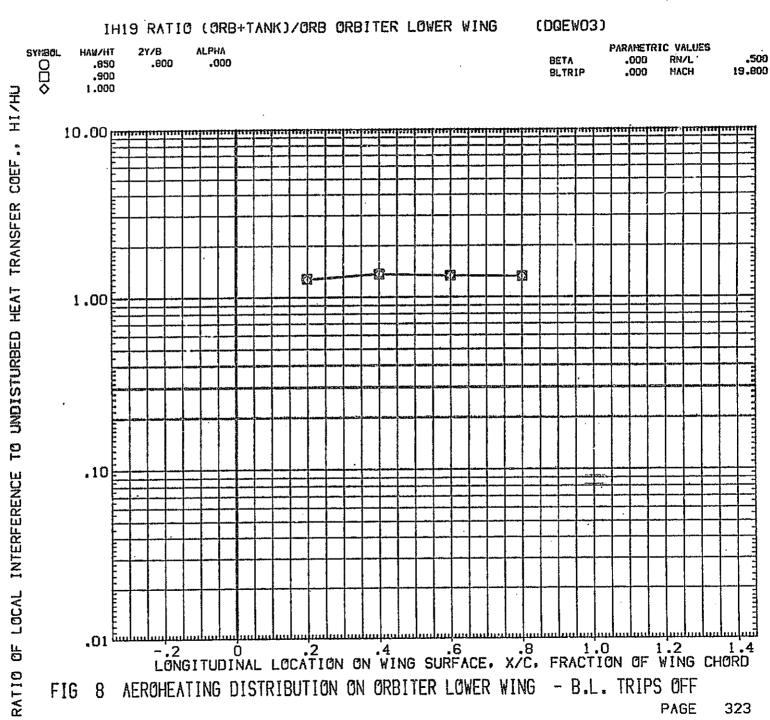


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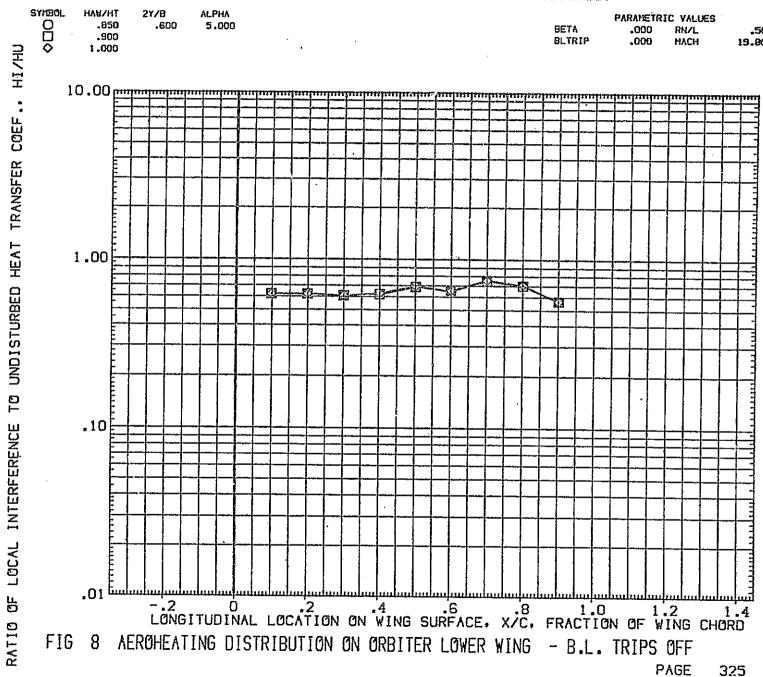


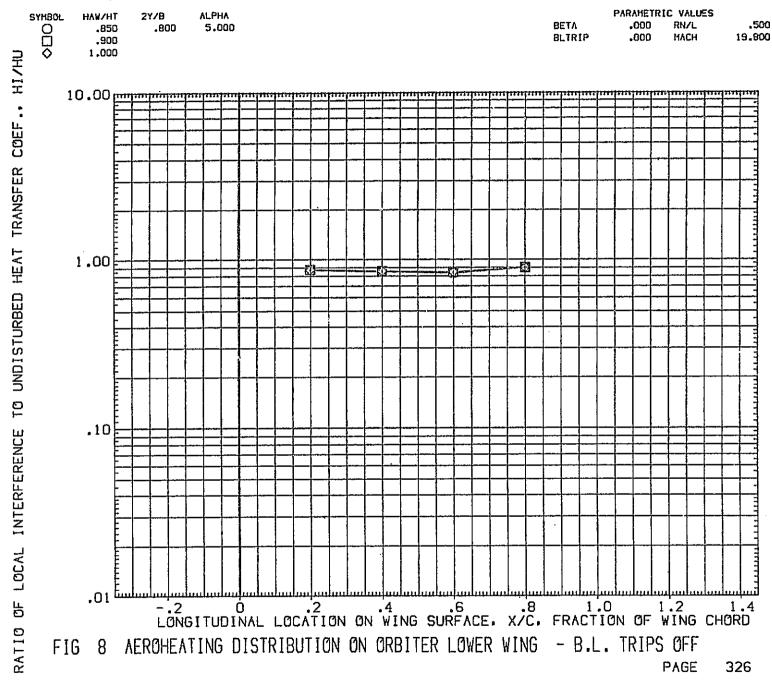
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FIG 8 AEROHEATING DISTRIBUTION ON ORBITER LOWER WING - B.L. TRIPS OFF

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IH19 RATIO (ORB+TANK)/ORB ØRBITER LOWER WING (DQEWO3)





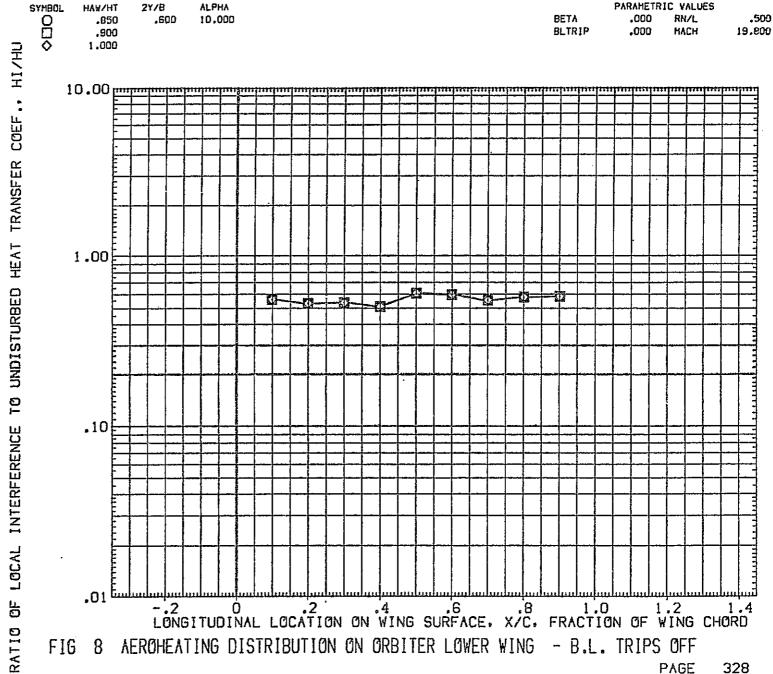
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(DQEWO3)



IH19 RATIO (ORB+TANK)/ORB ORBITER LOWER WING (DQEWO3) SYMBOL THYMAH 2Y/B 000 .850 .800 PARAMETRIC VALUES 10.000 .900 BETA .000 RN/L 1.000 BLTRIP MACH 19,800 TRANSFER TO UNDISTURBED HEAT 1.00 INTERFERENCE LOCAL -.2 0 .2 .4 .6 .8 1.0 1.2 1.4 LONGITUDINAL LOCATION ON WING SURFACE, X/C. FRACTION OF WING CHORD RATIO FIG 8 AEROHEATING DISTRIBUTION ON ORBITER LOWER WING - B.L. TRIPS OFF

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FIG 9 AEROHEATING DISTRIBUTION ON ORBITER LOWER WING - B.L. TRIPS ON PAGE

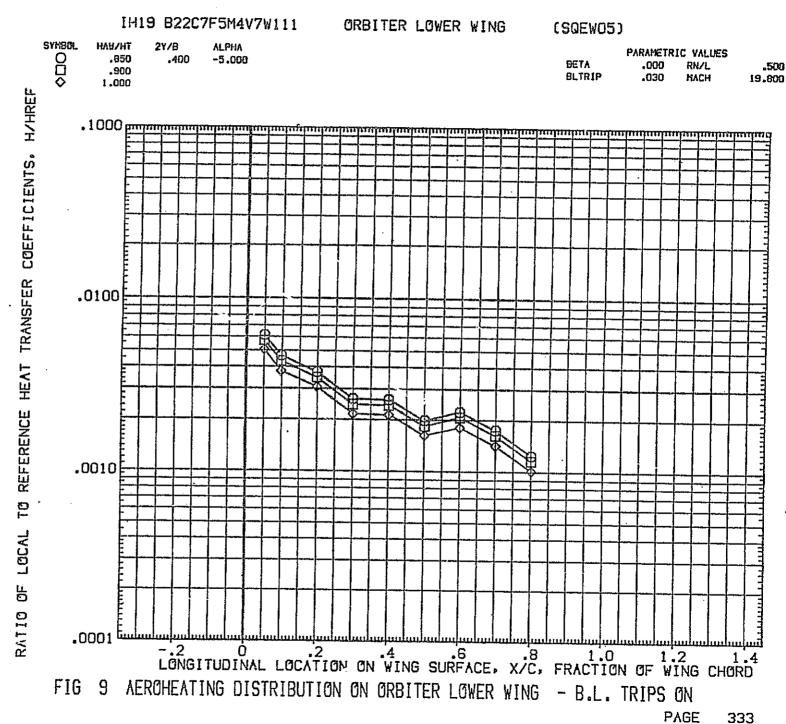


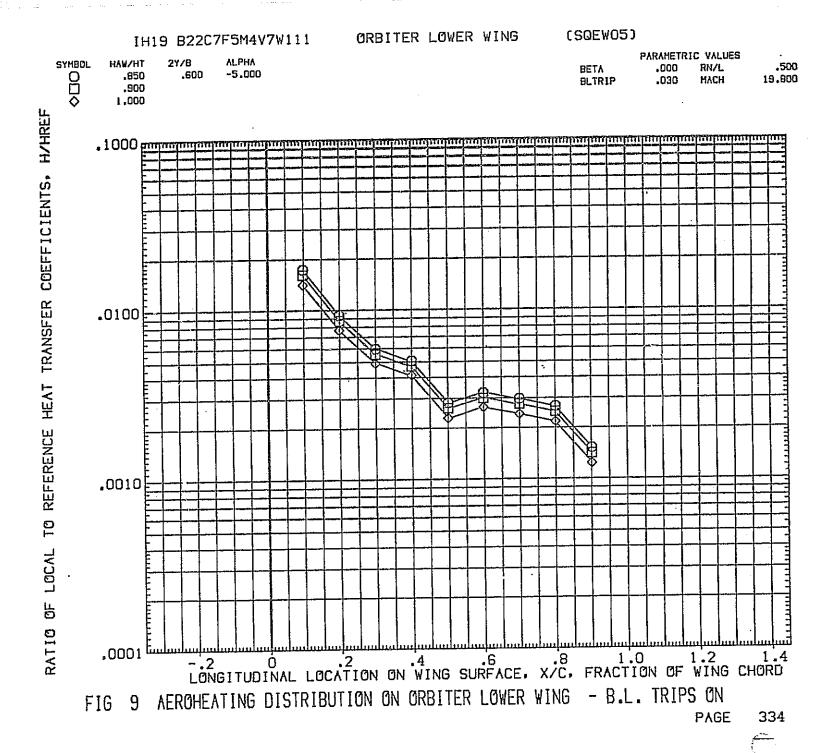
ORBITER LOWER WING (SQEWO5) IH19 B22C7F5M4V7W111 PARAMETRIC VALUES 2Y/8 ALPHA SYMBOL HVAVH 000 .850 -10.000 BETA BLTRIP .030 MACH 19.800 .900 1.000 COEFFICIENTS, TRANSFER .0100 REFERENCE HEAT .0010 LOCAL ستا 1000. -.2 O .2 .4 .6 .8 1.0 1.2 1.4 LONGITUDINAL LOCATION ON WING SURFACE, X/C, FRACTION OF WING CHORD

FIG 9 AEROHEATING DISTRIBUTION ON ORBITER LOWER WING - B.L. TRIPS ON

(SQEW05) ORBITER LOWER WING IH19 B22C7F5M4V7W111 PARAMETRIC VALUES ALPHA SYMBOL HAW/HT .500 .000 RN/L BETA 000 .800 -10.000 .850 19,800 MACH BLTRIP .030 .900 1.000 H/HREF COEFFICIENTS, TRANSFER .0100 REFERENCE HEAT .0010 LOCAL R RATIO -.2 O .2 .4 .6 .8 1.0 1.2 1.4 LONGITUDINAL LOCATION ON WING SURFACE. X/C, FRACTION OF WING CHORD ىستا 0001. FIG 9 AEROHEATING DISTRIBUTION ON ORBITER LOWER WING - B.L. TRIPS ON PAGE 332







IH19 B22C7F5M4V7W111 ORBITER LOWER WING (SQEWO5) **THYVAH** 2Y/B ALPHA 9 859 .900 BLTRIP 1.000 .0100

COEFFICIENTS, TRANSFER .0010 استا 1000. -.2 0 .2 .4 .6 .8 1.0 1.2 1.4 LONGITUDINAL LOCATION ON WING SURFACE, X/C. FRACTION OF WING CHORD

FIG 9 AEROHEATING DISTRIBUTION ON ORBITER LOWER WING - B.L. TRIPS ON

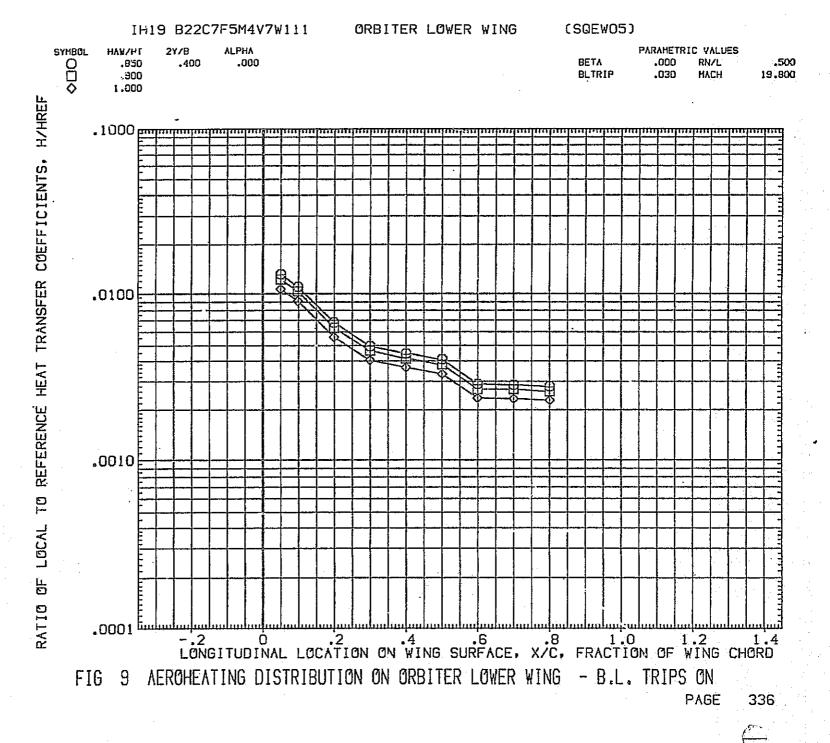
PAGE 335

PARAMETRIC VALUES

RH/L

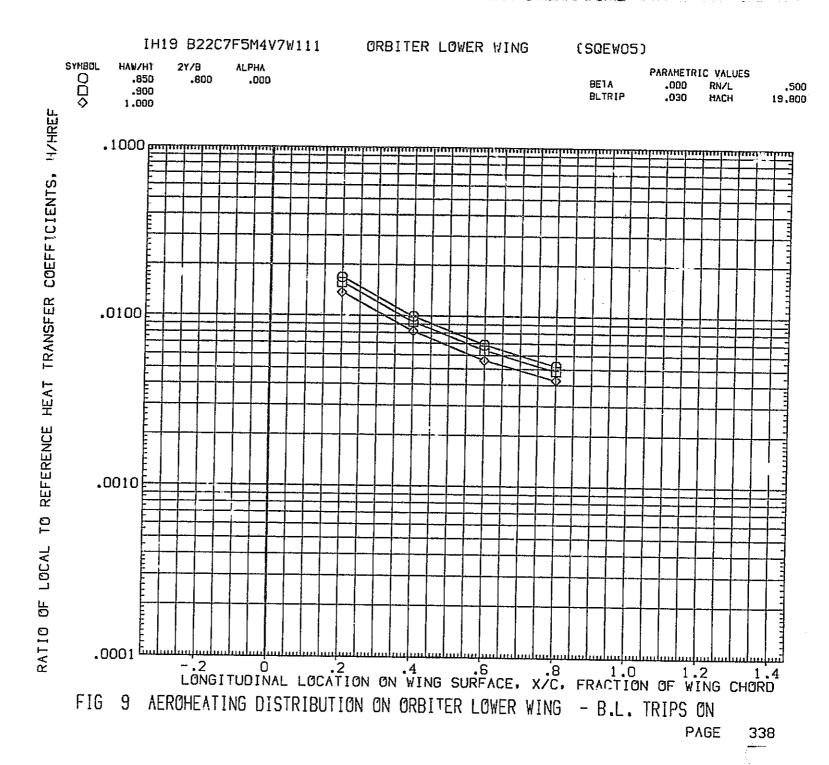
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IH19 B22C7F5M4V7W111 ORBITER LOWER WING (SQEWO5) SYMBOL HAUZHT PARAMETRIC VALUES 000 .650 BETA .000 RN/L .500 .500 BLTRIP 19.800 1.000 H/HREF . 1000 programmaria COEFFICIENTS, TRANSFER .0100 TO REFERENCE HEAT .0010 ىسىنا 0001. -.2 0 .2 .4 .6 .8 1.0 1.2 1.4 LONGITUDINAL LOCATION ON WING SURFACE, X/C, FRACTION OF WING CHORD

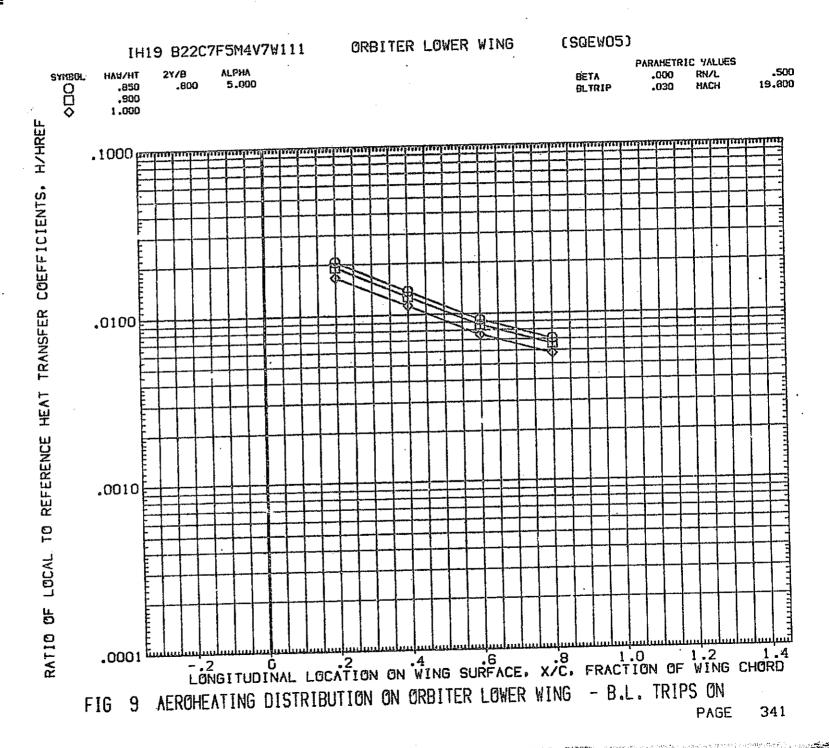
FIG 9 AEROHEATING DISTRIBUTION ON ORBITER LOWER WING - B.L. TRIPS ON

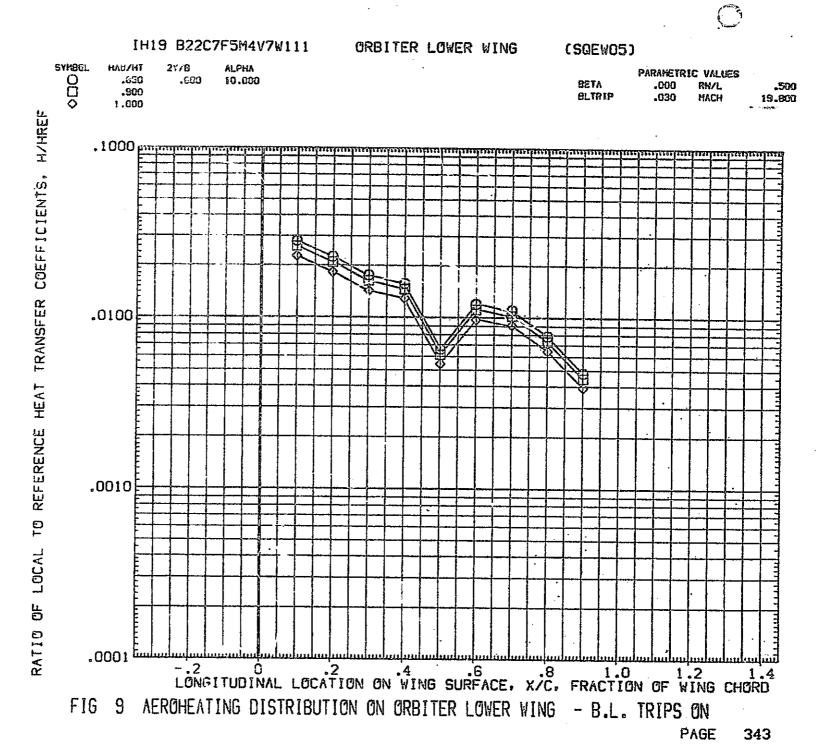


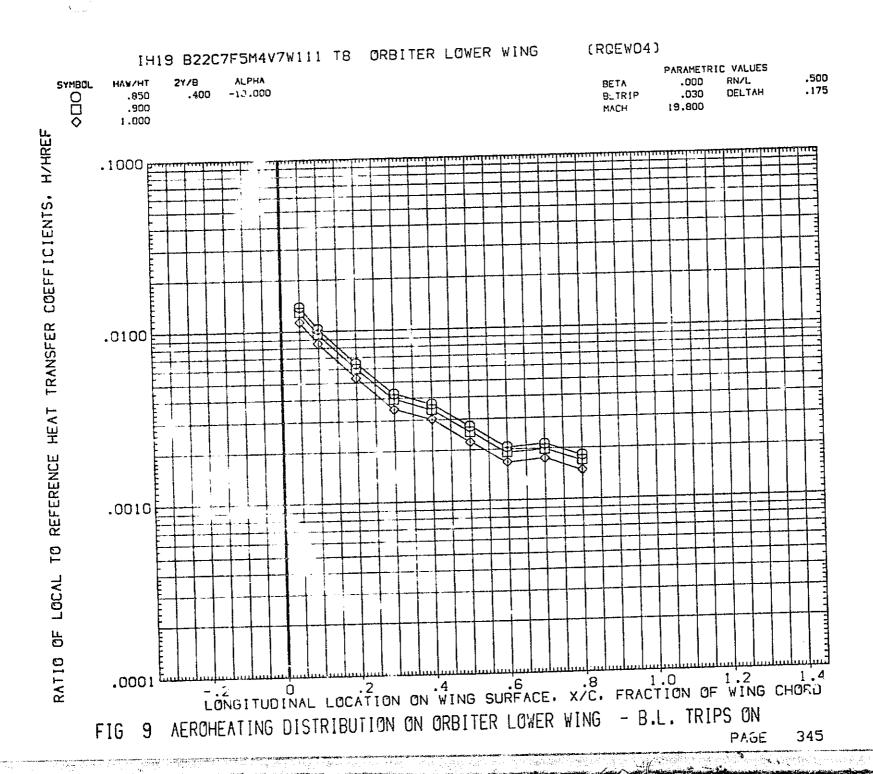
IH19 B22C7F5M4V7W111 ORBITER LOWER WING (SQEWO5) SYKBOL HVANHL PARAMETRIC VALUES 000 .850 5.000 BETA : .000 RN/L .500 .900 HACH BLTRIP .030 19.800 1.000 COEFFICIENTS, .0100 REFERENCE .0010 PF. RATIO سا 2000 سا -.2 0 .2 .4 .6 .8 1.0 1.2 1.4 LONGITUDINAL LOCATION ON WING SURFACE, X/C, FRACTION OF WING CHORD FIG 9 AEROHEATING DISTRIBUTION ON ORBITER LOWER WING - B.L. TRIPS ON

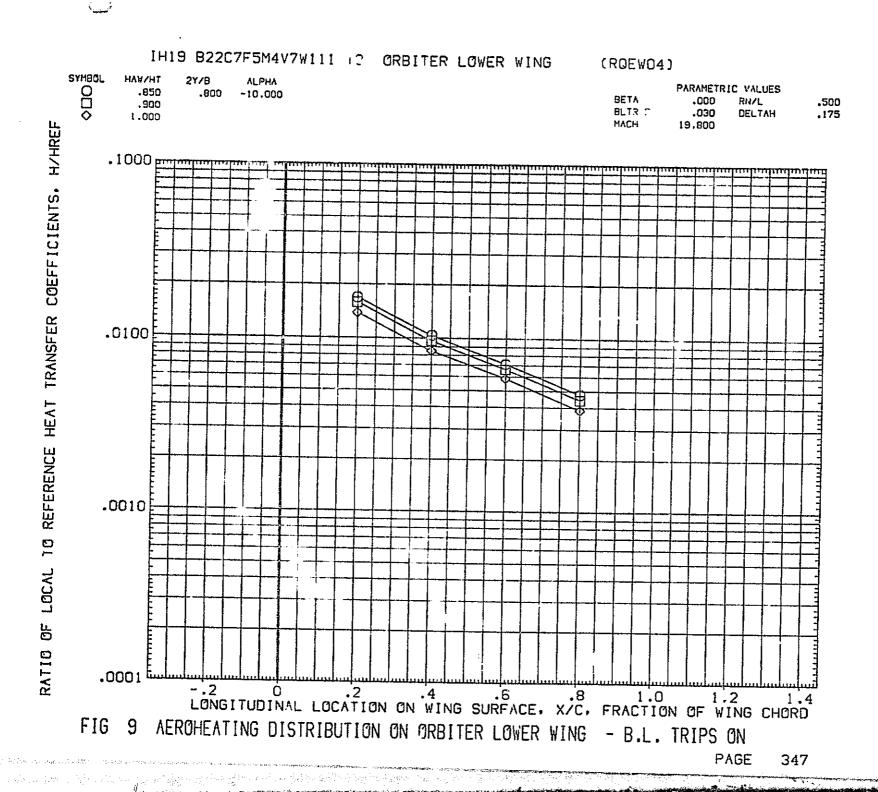
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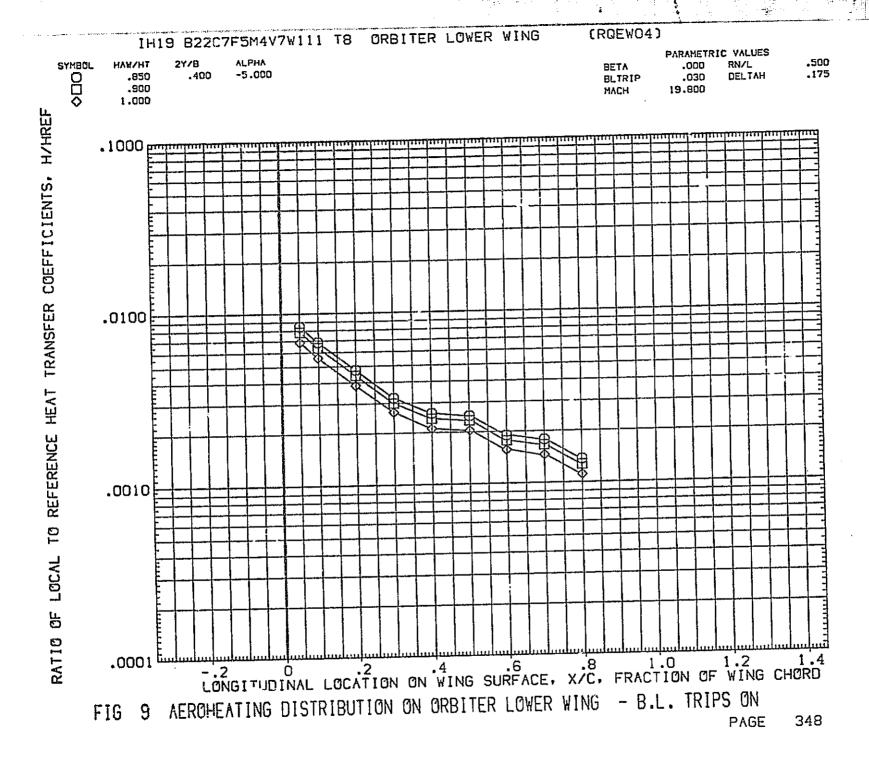


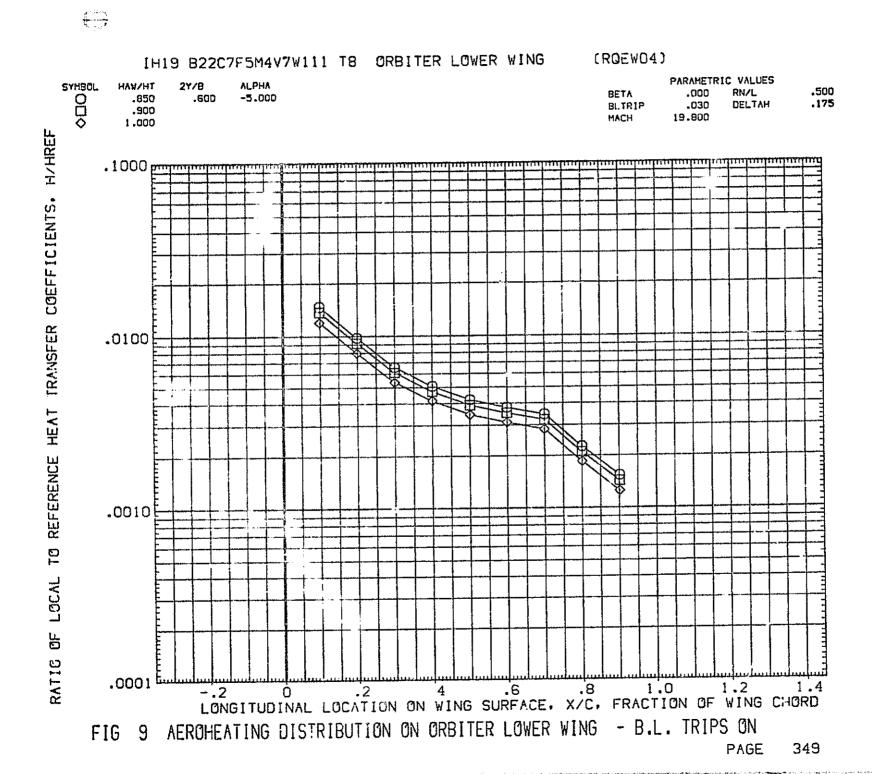












IH19 B22C7F5M4V7W111 T8 ORBITER LOWER WING (RQEWO4) **ALPHA** PARAMETRIC VALUES HAW/HT 2Y/B .500 .850 .400 .000 BΕΤΛ .000 RN/L BLTRIP .030 DELTAH .175 .900 1,000 MACH . 19.700

SYMBOL

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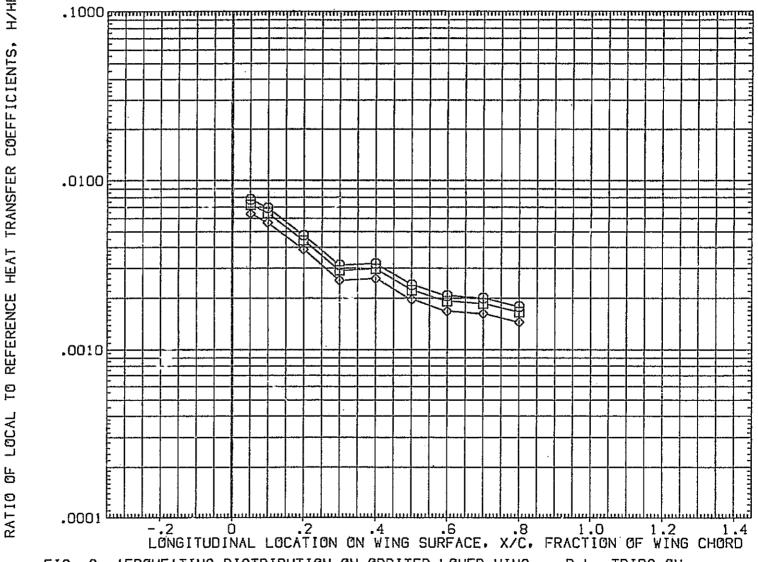


FIG 9 AEROHEATING DISTRIBUTION ON ORBITER LOWER WING - B.L. TRIPS ON

IH19 B22C7F5M4V7W111 T8 ORBITER LOWER WING (RQEWO4) SYMBOL HAW/HT 2Y/B ALPHA PARAMETRIC VALUES 000 .050 .600 .000 BETA .000 RN/L .500 .900 BLTRIP .030 DELTAH .175 1.000 MACH 19.800 H/HREF COEFFICIENTS, TRANSFER .0100 REFERENCE HEAT .0010 TO

-.2 O .2 .4 .6 .8 1.0 1.2 1.4 LONGITUDINAL LOCATION ON WING SURFACE, X/C, FRACTION OF WING CHORD FIG 9 AEROHEATING DISTRIBUTION ON ORBITER LOWER WING - B.L. TRIPS ON

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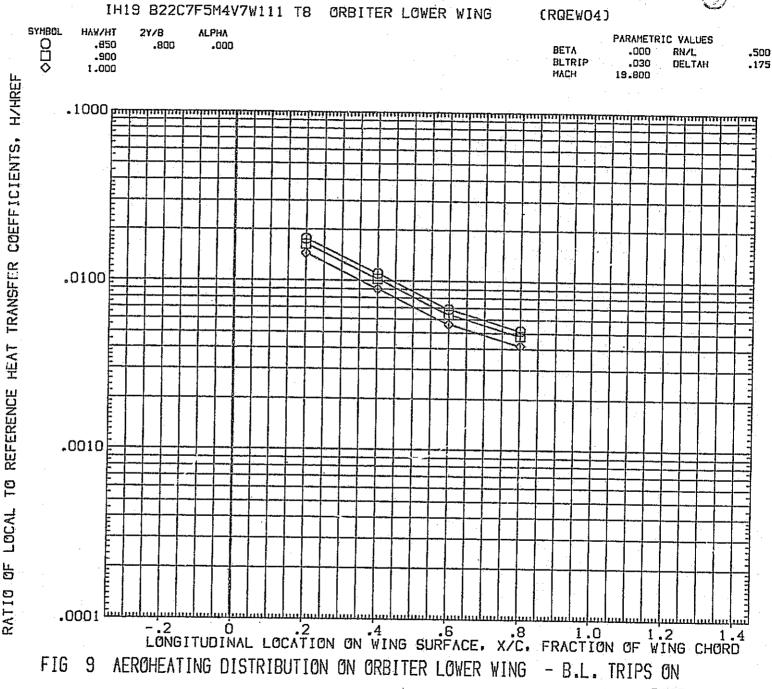


FIG 9 AEROHEATING DISTRIBUTION ON ORBITER LOWER WING - B.L. TRIPS ON

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IH19 B22C7F5M4V7W111 T8 ORBITER LOWER WING (RQEWO4) SYMBOL. THVWAH 2Y/8 ALPHA PARAMETRIC VALUES 000 .850 .600 5.000 BETA .000 RN/L .900 BLTRIP .030 DELTAH .175 1.000 HACH 19.800 COEFFICIENTS, TRANSFER .0100 HEAT REFERENCE

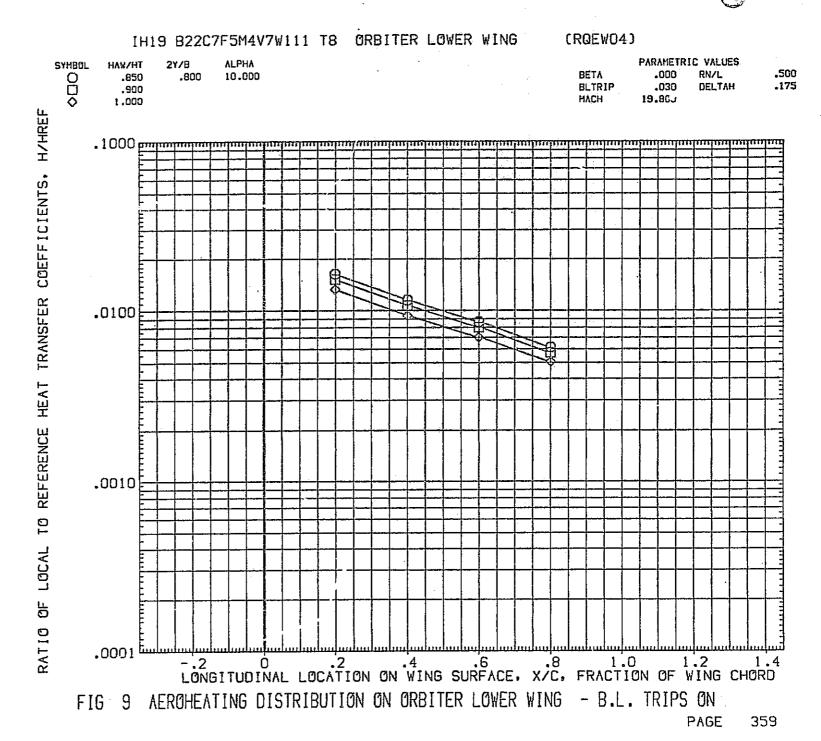
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ستا 2000ء -.2 C .2 .4 .6 .8 1.0 1.2 1.4 LONGITUDINAL LOCATION ON WING SURFACE, X/C, FRACTION OF WING CHORD FIG 9 AEROHEATING DISTRIBUTION ON ORBITER LOWER WING - B.L. TRIPS ON

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IH19 B22C7F5M4V7W111 T8 @RBITER LOWER WING (RQEWO4) HAW/HT 2Y/8 **ALPHA** 000 PARAMETRIC VALUES .850 .400 10,000 .000 .900 BLTRIP 1.000 .030 DELTAH H/HREF MACH 19.800 COEFFICIENTS, HEAT TRANSFER .0100 REFERENCE .0010 LOCAL R RATIO سلستا 0001 -.2 O .2 .4 .6 .8 1.0 1.2 1.4 LONGITUDINAL LOCATION ON WING SURFACE. X/C. FRACTION OF WING CHORD FIG 9 AEROHEATING DISTRIBUTION ON ORBITER LOWER WING - B.L. TRIPS ON PAGE



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IH19 RATIO (ORB+TANK)/ORB ORBITER LOWER WING (DQEVO4) SYMBOL HAWZHT 2Y/B PARAMETRIC VALUES 000 .850 .600 -10,000 BETA RNZL .900 -500 HACH 19,800 1.000 TRANSFER COEF TO UNDISTURBED HEAT 1.00 .10 LOCAL -.2 0 .2 .4 .6 .8 1.0 1.2 1.4 LONGITUDINAL LOCATION ON WING SURFACE, X/C, FRACTION OF WING CHORD FIG 9 AEROHEATING DISTRIBUTION ON ORBITER LOWER WING - B.L. TRIPS ON

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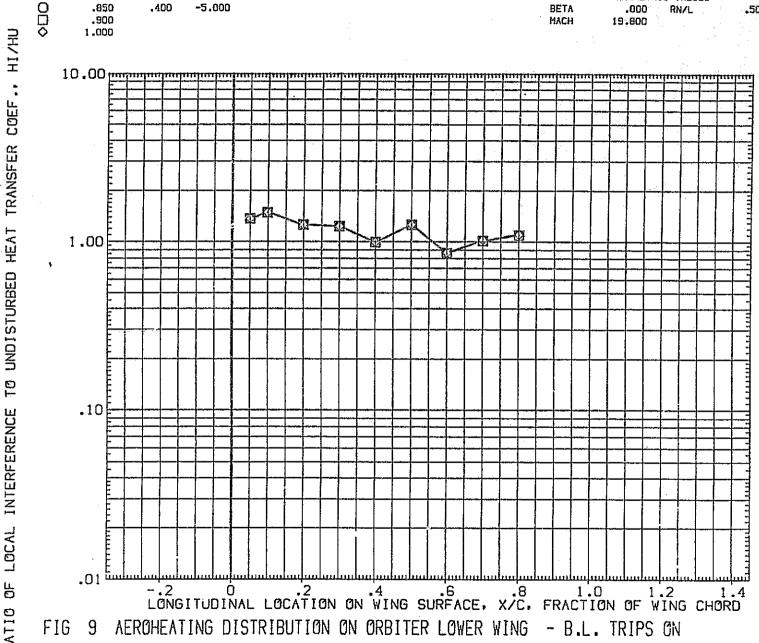
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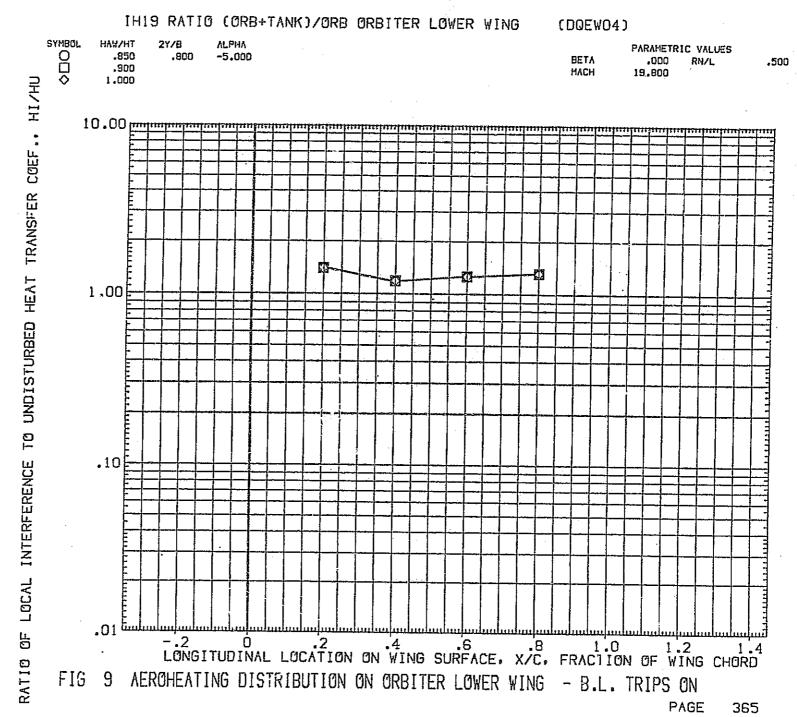


SYMBOL



PAGE 363





IH19 RATIO (ORB+TANK)/ORB ORBITER LOWER WING (DQEWO4) SYMBOL TH\WAH 2Y/B ALPHA PARAMETRIC VALUES 000 .850 .400 .000 BETA .000 RN/L .900 MACH 19.800 1.000 TRANSFER 1.00 UNDISTURBED .10 -.2 0 .2 .4 .6 .8 1.0 1.2 1.4 LONGITUDINAL LOCATION ON WING SURFACE, X/C, FRACTION OF WING CHORD FIG 9 AEROHEATING DISTRIBUTION ON ORBITER LOWER WING - B.L. TRIPS ON PAGE 366

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IH19 RATIO (ORB+TANK)/ORB ORBITER LOWER WING SYMBOL 8\YS .600 HAW/HT 000 .850 PARAMETRIC VALUES .900 •000 RN/L 1.000 19.800 10.00 mmmmmm 1.00 .10 INTERFERENCE -.2 0 .2 .4 .6 .8 1.0 1.2 1.4 LONGITUDINAL LOCATION ON WING SURFACE, X/C, FRACTION OF WING CHORD FIG 9 AEROHEATING DISTRIBUTION ON ORBITER LOWER WING - B.L. TRIPS ON

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IH19 RATIO (ORB+TANK)/ORB ORBITER LOWER WING (DQEWO4) SYMBOL THVWAH 2Y/B ለLPዘለ PARAMETRIC VALUES 000 .850 .800 .000 BETA .000 RN/L .900 HACH 19.800 1.000 10.00 թարարա TRANSFER UNDISTURBED HEAT 1.00 10 .10 LOCAL INTERFERENCE -.2 0 .2 .4 .6 .8 1.0 1.2 1.4 LONGITUDINAL LOCATION ON WING SURFACE, X/C, FRACTION OF WING CHORD FIG 9 AEROHEATING DISTRIBUTION ON ORBITER LOWER WING - B.L. TRIPS ON PAGE 368

IH19 RATIO (ORB+TANK)/ORB ORBITER LOWER WING (DGEWO4) SYMBOL HAWAHT 2Y/8 ALPHA 000 .850 -400 5.000 PARAHETRIC VALUES .900 BETA HIZHU .000 RH/L 1.000 .500 HYCH 19.800 COEF TRANSFER HEAT 1.00 TU UNDISTURBED INTERFERENCE .10 LOCAL -.2 0 .2 .4 .6 .8 1.0 1.2 1.4 LONGITUDINAL LOCATION ON WING SURFACE, X/C, FRACTION OF WING CHORD RATIO AEROHEATING DISTRIBUTION ON ORBITER LOWER WING - B.L. TRIPS ON PAGE 369

AEROHEATING DISTRIBUTION ON ORBITER LOWER WING FIG 9 PAGE

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(DQEW04) IH19 RATIO (ORB+TANK)/ORB OPBITER LOWER WING PARAHETRIC VALUES .500 RN/L .000 2Y/B HAW/HT SYMBOL 19.800 5.000 .800 .850 000 .900 1.000 COEF. TRANSFER TO UNDISTURBED HEAT 1.00 .10 INTERFERENCE LOCAL -.2 0 .2 .4 .6 .8 1.0 1.2 1.4 LONGITUDINAL LOCATION ON WING SURFACE, X/C, FRACTION OF WING CHORD 띥 FIG 9 AEROHEATING DISTRIBUTION ON ORBITER LOWER WING - B.L. TRIPS ON 371 PAGE

-.2 0 .2 .4 .6 .8 1.0 1.2 1.4 LONGITUDINAL LOCATION ON WING SURFACE, X/C, FRACTION OF WING CHORD AEROHEATING DISTRIBUTION ON ORBITER LOWER WING - B.L. TRIPS ON FIG PAGE

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IH19 RATIO (ORB+TANK)/ORB ORBITER LOWER WING (DQEWO4) SYMBOL THVWAH ALPHA. PARAMETRIC VALUES 000 .850 .600 10.000 .000 .900 HI/HU 1.000 TRANSFER COEF 1.00 UNDISTURBED 0 .10 INTERFERENCE LOCAL R -.2 0 .2 .4 .6 .8 1.0 1.2 ..4 LONGITUDINAL LOCATION ON WING SURFACE. X/C. FRACTION OF WING CHORD FIG 9 AEROHEATING DISTRIBUTION ON ORBITER LOWER WING - B.L. TRIPS ON

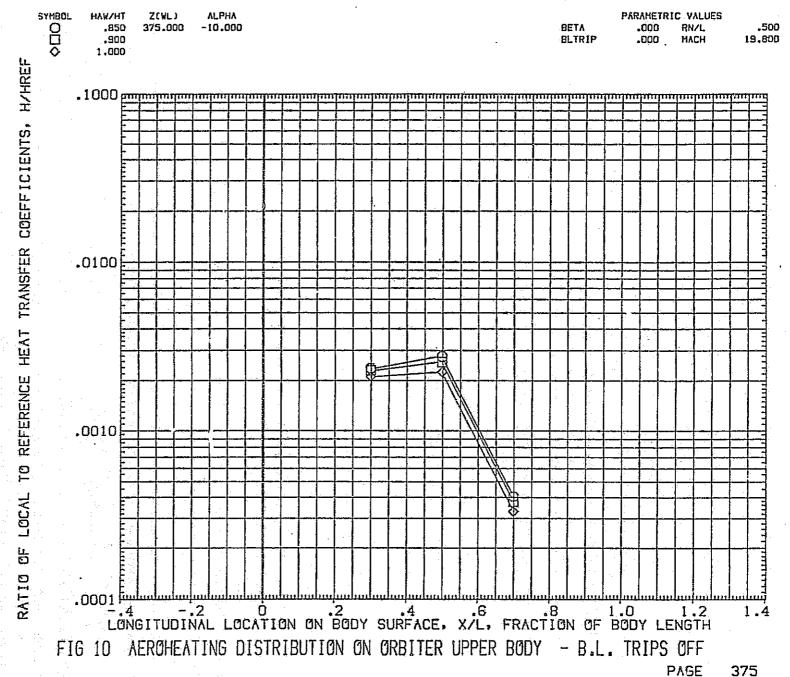
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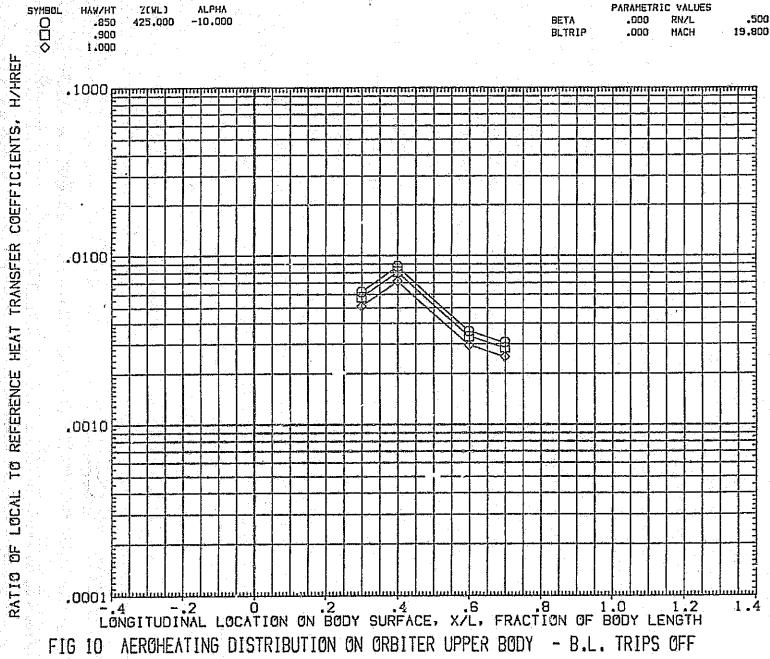
FIG 9 AEROHEATING DISTRIBUTION ON ORBITER LOWER WING - B.L. TRIPS ON

PAGE 374

IH19 B22C7F5M4V7W111

ORBITER UPPER FUSELAGE (SQEU06)





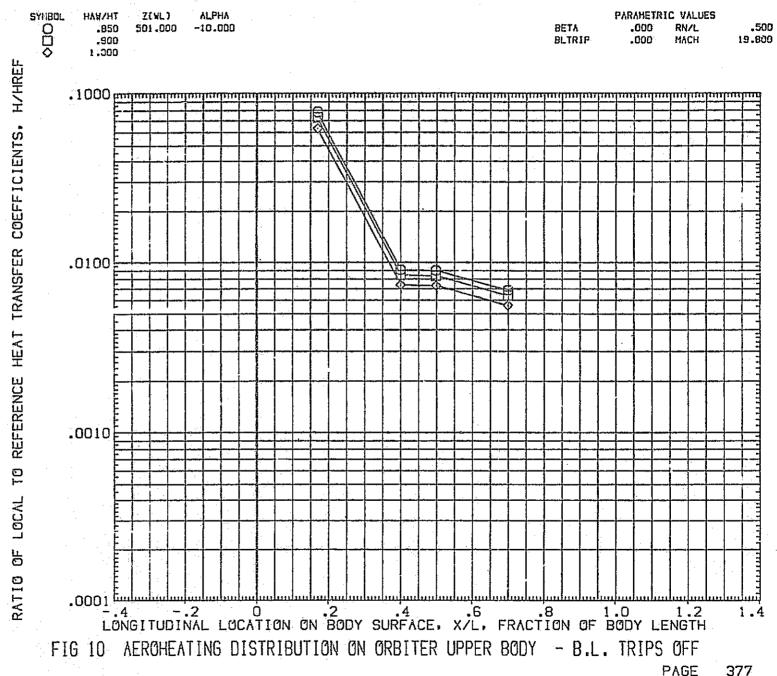
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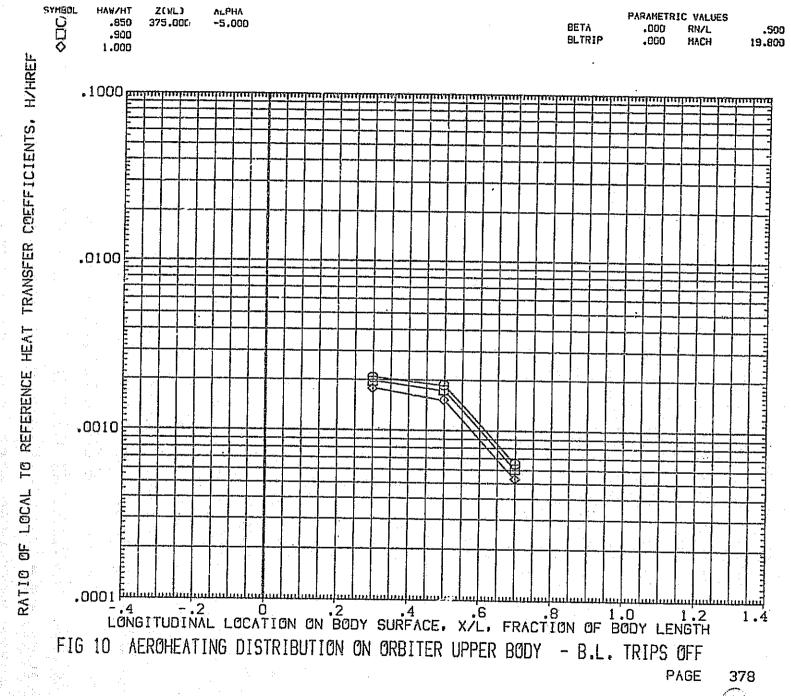
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IH19 B22C7F5M4V7W111 ORBITER UPPER FUSELAGE (SQEU06)





IH19 B22C7F5M4V7W111 ORBITER UPPER FUSELAGE (SQEU06) HAW/HT 000 PARAMETRIC VALUES .850 425.000 RNZI. .900 BLTRIP .000 HALH 1.000 .0100 REFERENCE .0010) 1 Feederstands and a feederstand and a feeders FIG 10 AEROHEATING DISTRIBUTION ON ORBITER UPPER BODY - B.L. TRIPS OFF

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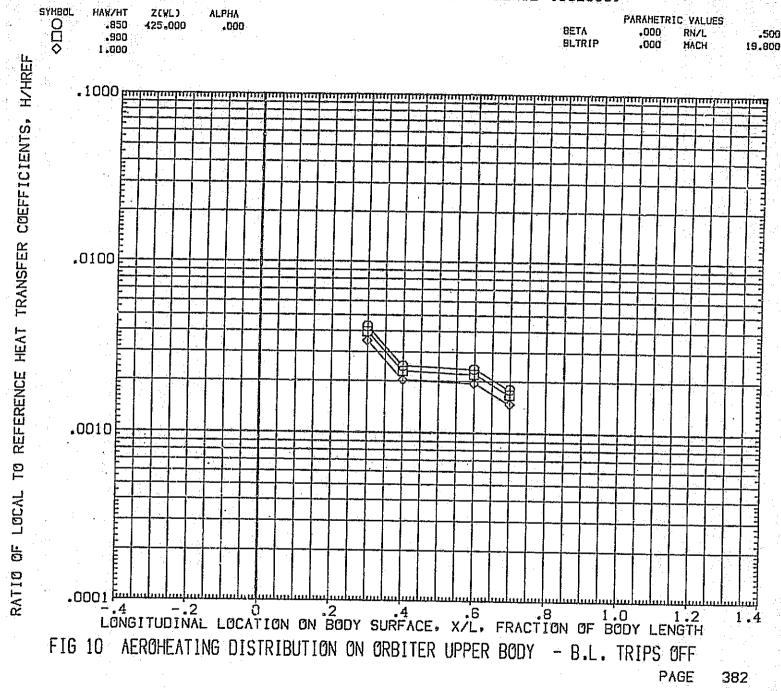
IH19 B22C7F5M4V7W111 ORBITER UPPER FUSELAGE (SQEU06) SYMBOL HAWAHT ALPHA PARÁMETRIC VALUES 000 .850 501.000 -5.000 BETA .000 RNZL .900 BLTRIP .000 HACH 1,000 REFERENCE HEAT TRANSFER .0100 .0010 LOCAL Ë RATIO LONGITUDINAL LOCATION ON BODY SURFACE, X/L, FRACTION OF BODY LENGTH FIG 10 AEROHEATING DISTRIBUTION ON ORBITER UPPER BODY - B.L. TRIPS OFF PAGE 380

IH19 B22C7F5M4V7W111 ORBITER UPPER FUSELAGE (SQEU06) SYMBOL Z(WL) 375.000 НХУИНТ **ALPHA** PARAMETRIC VALUES RN/L .850 .000 BETA 19.800 BLTRIP .900 1.000 H/HREF COEFFICIENTS, TO REFERENCE HEAT TRANSFER .0100 .0010 LOCAL

FIG 10 AEROHEATING DISTRIBUTION ON ORBITER UPPER BODY - B.L. TRIPS OFF

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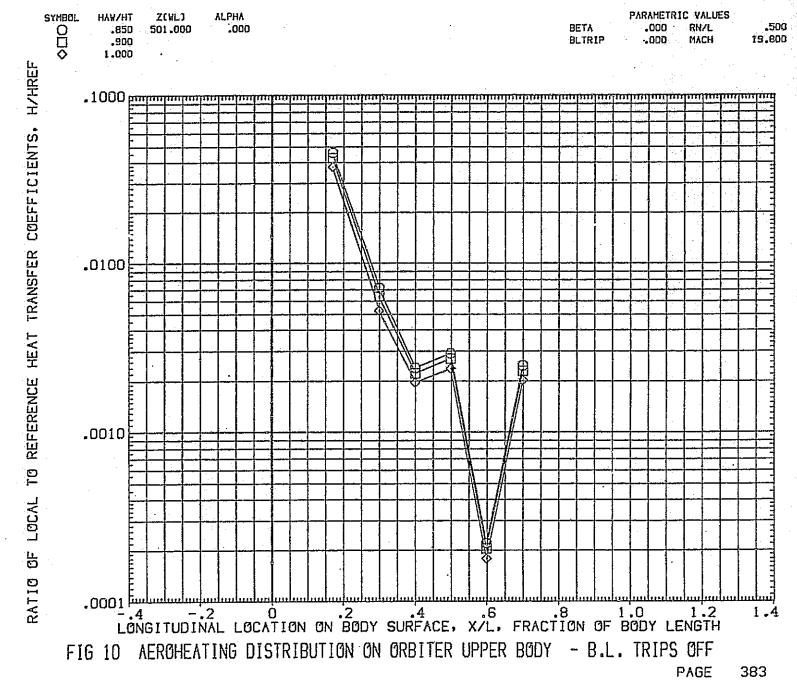
ORBITER UPPER FUSELAGE (SQEU06)

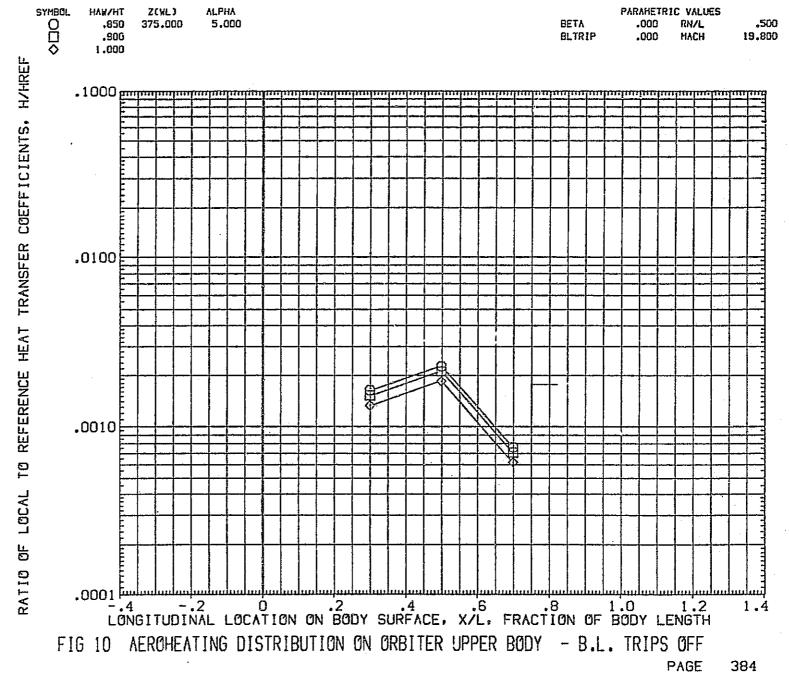






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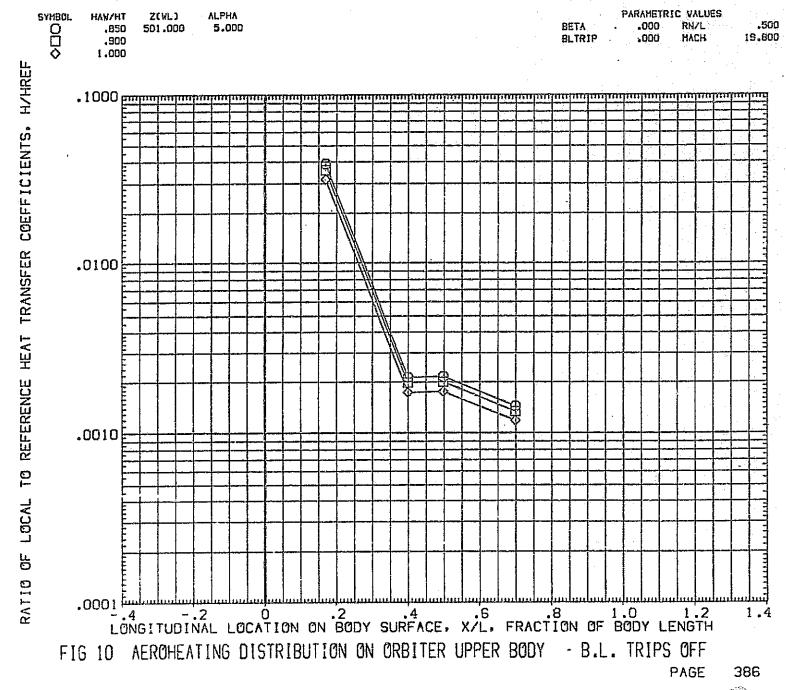
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ORBITER UPPER FUSELAGE (SQEU06)

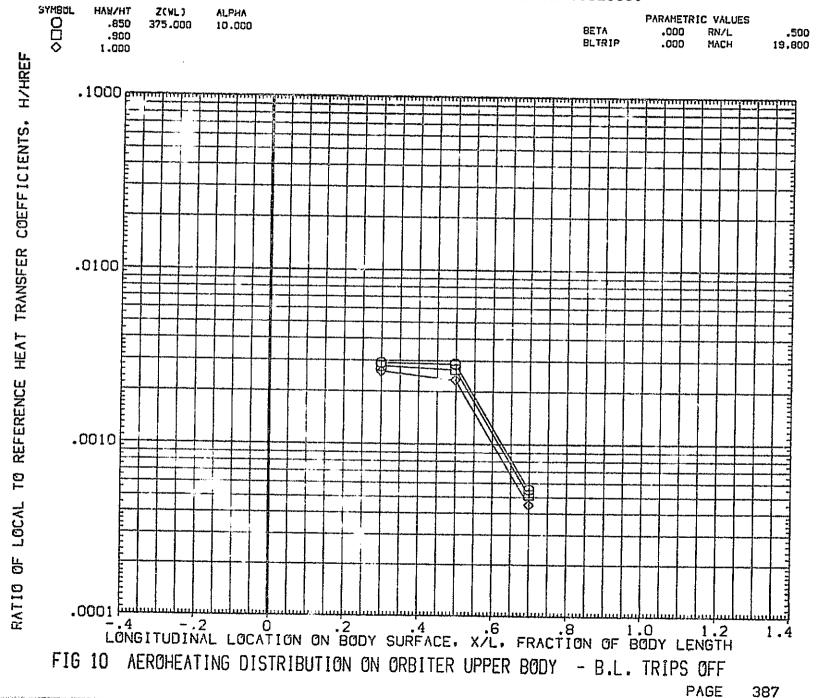
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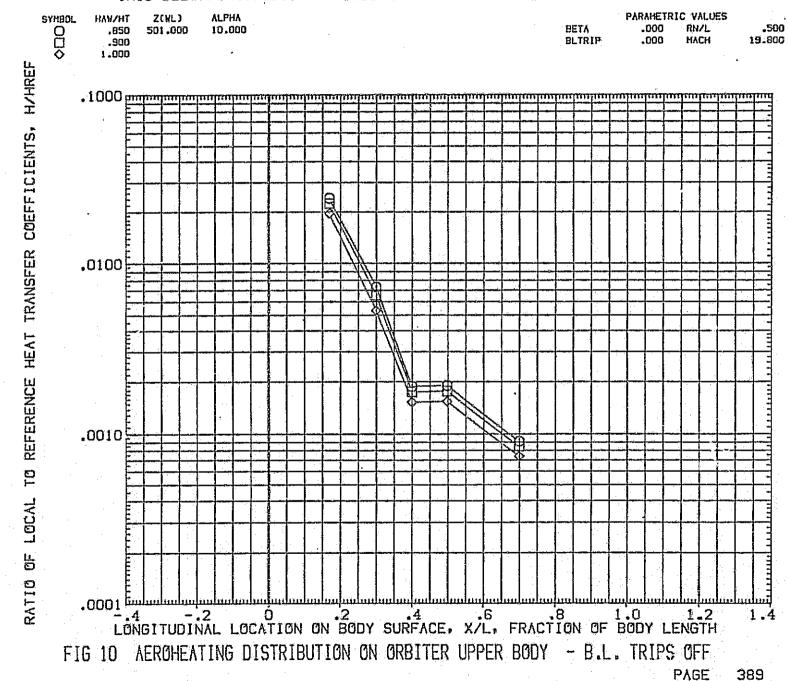
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IH19 B22C7F5M4V7W111 ORBITER UPPER FUSELAGE (SQEU06)

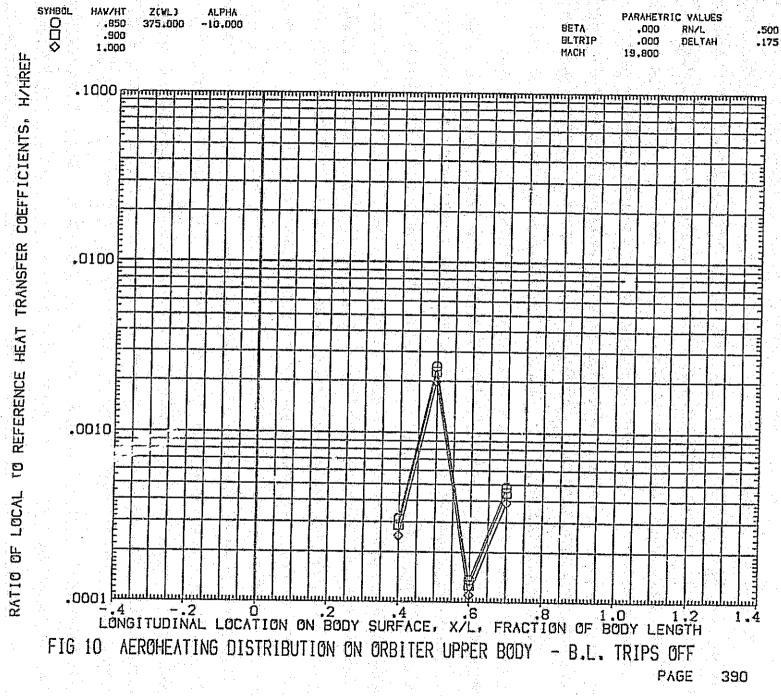


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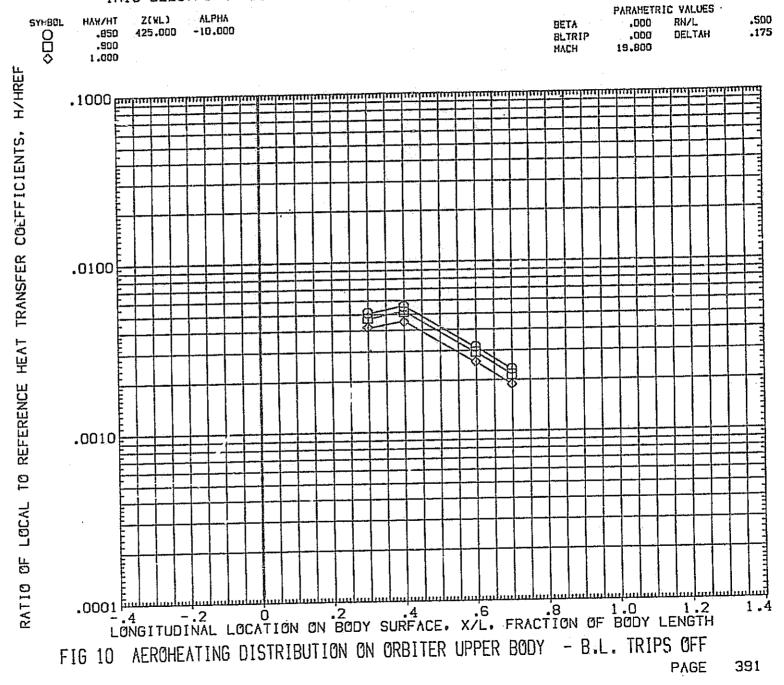
ORBITER UPPER FUSELAGE (SQEU06)



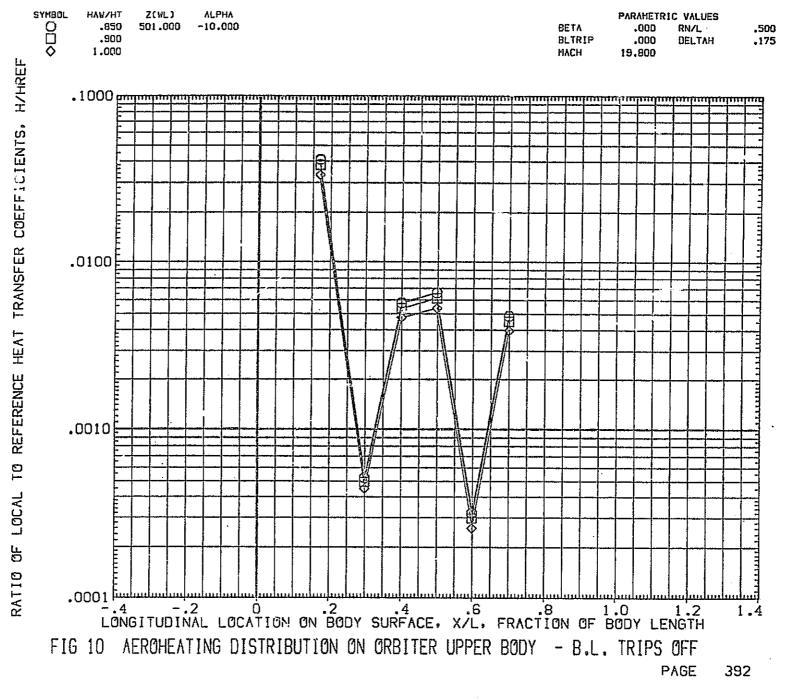
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IH19 B22C7F5M4V7W111 T8 ORBITER UPPER FUSELAGE (RQEU03)

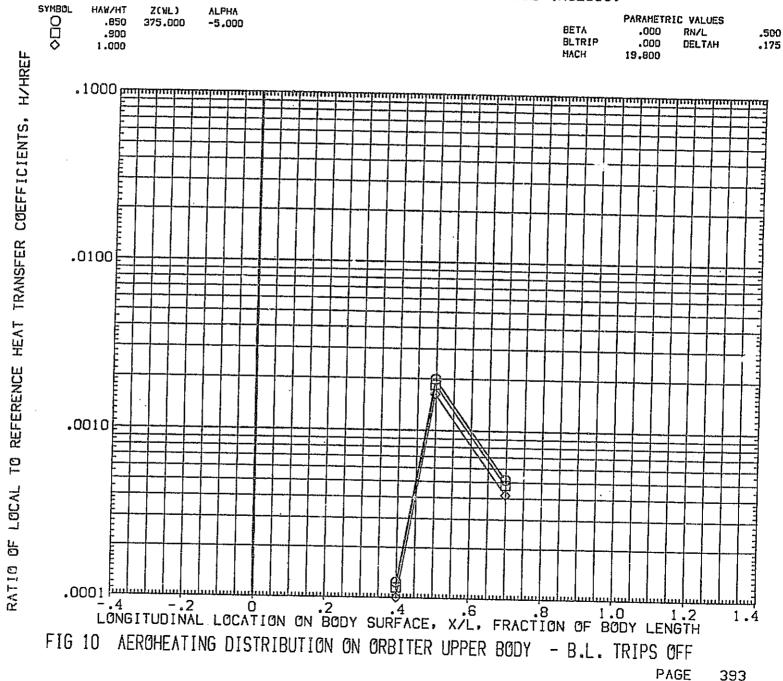


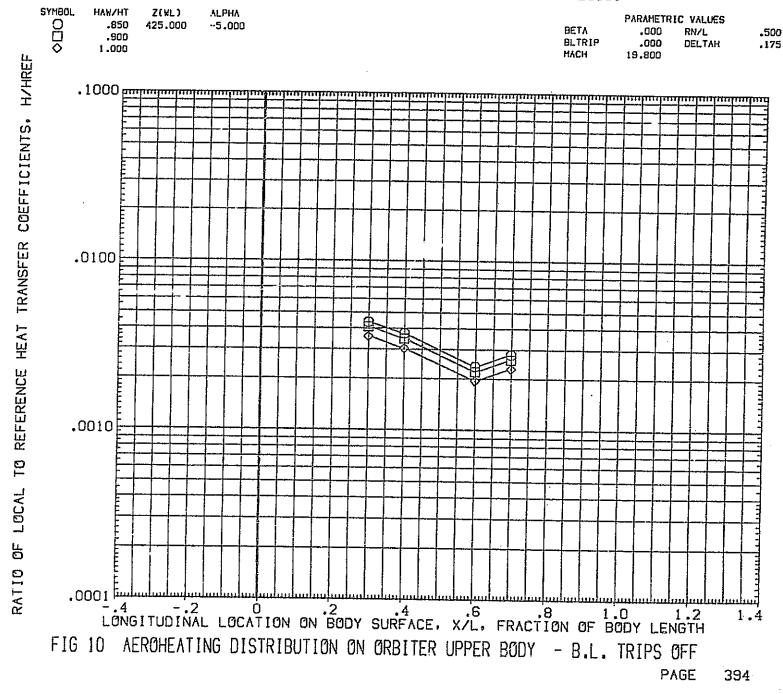
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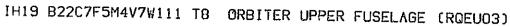


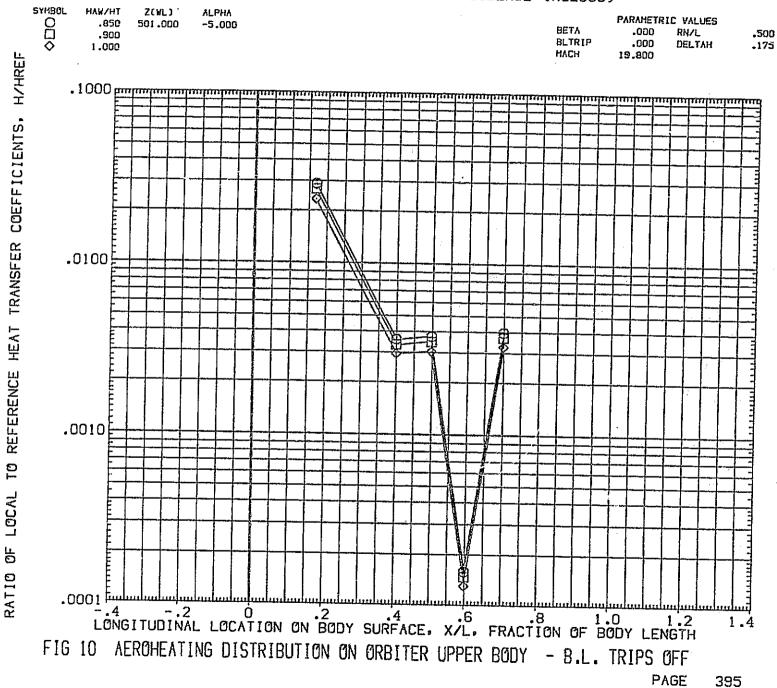


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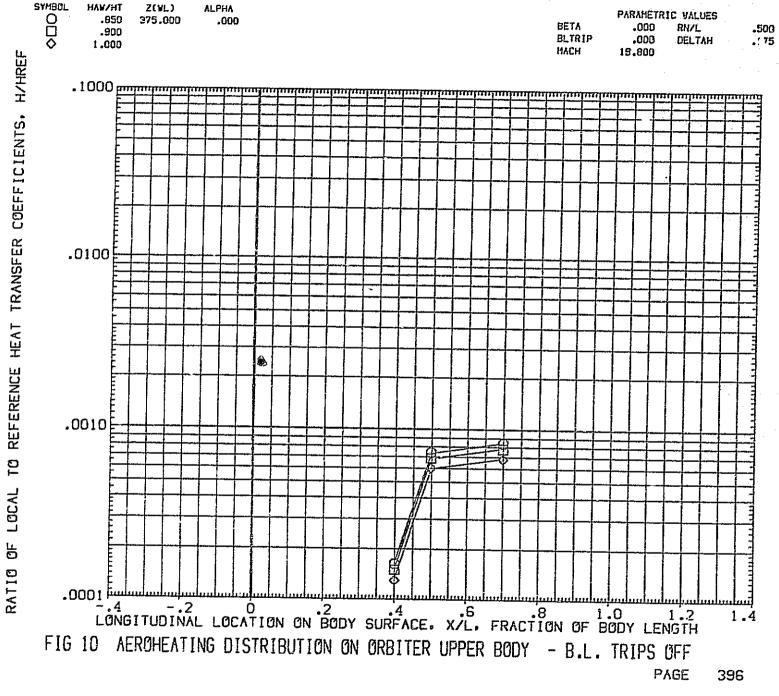


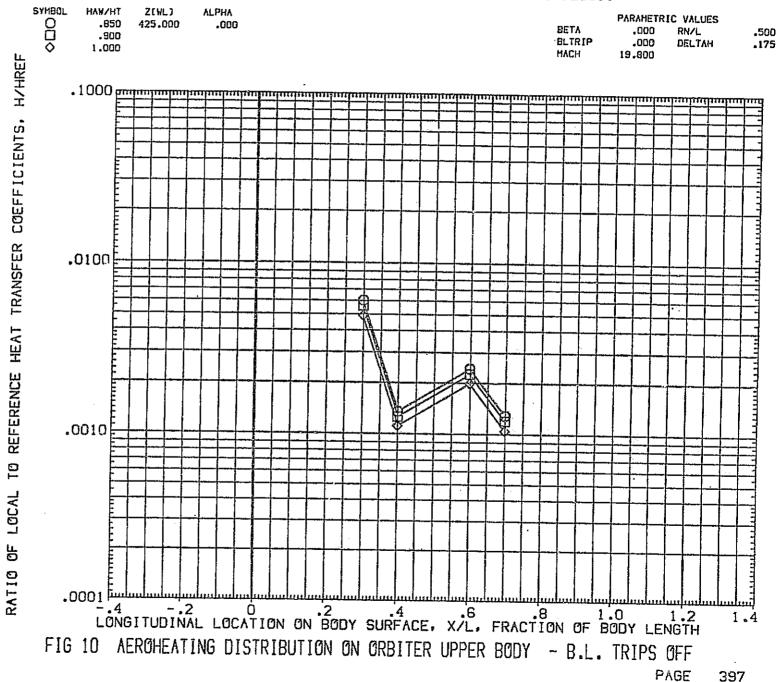




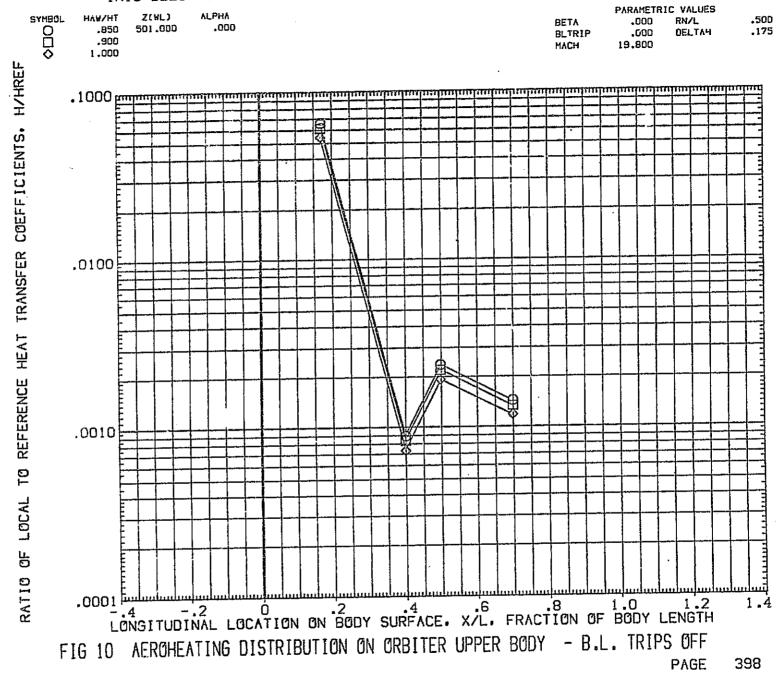
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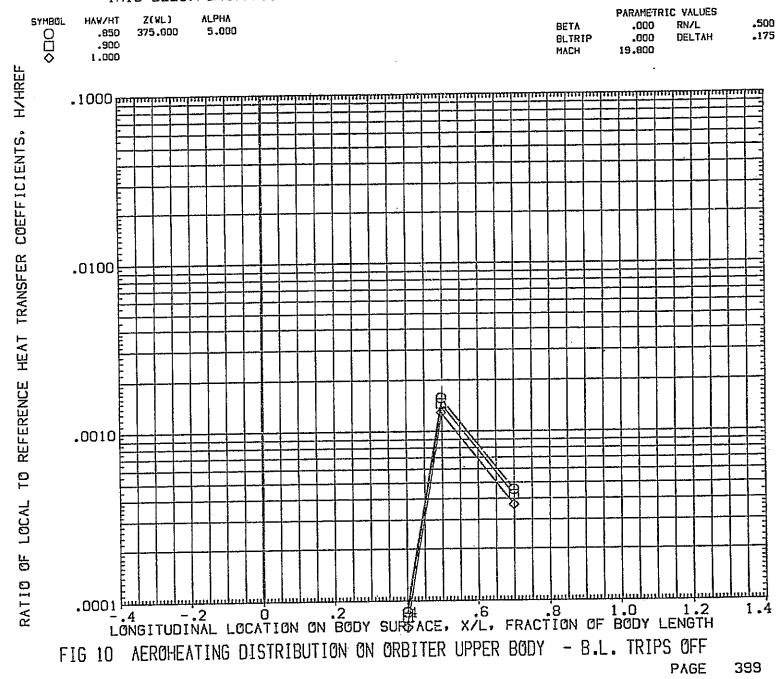




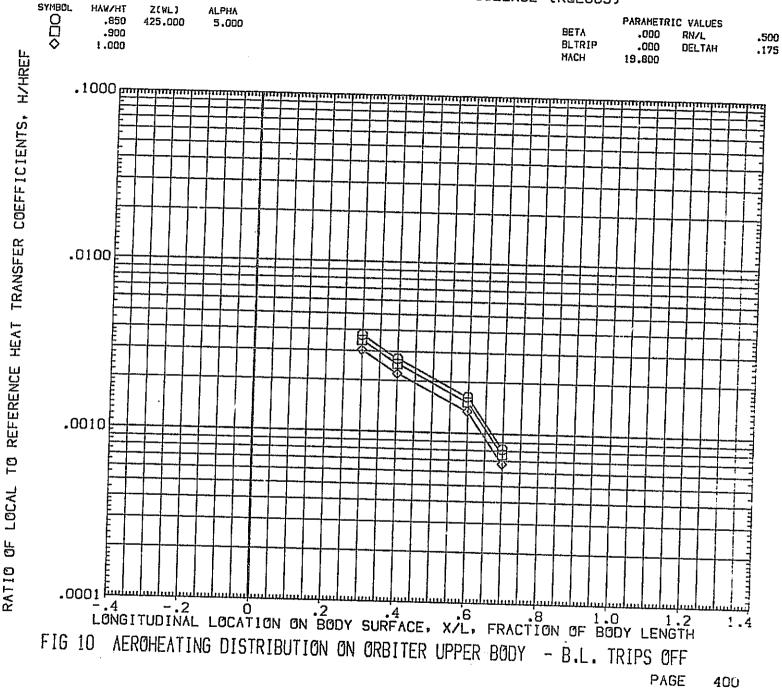
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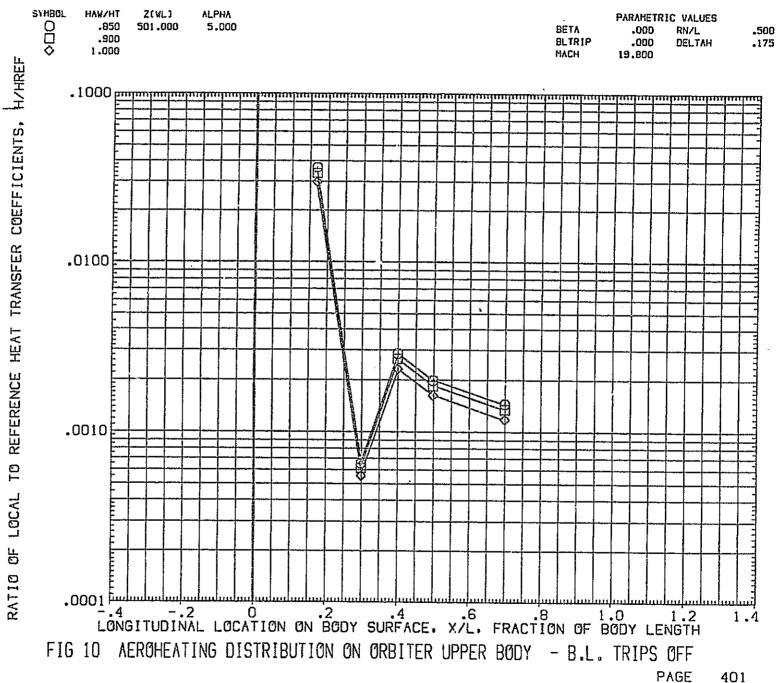


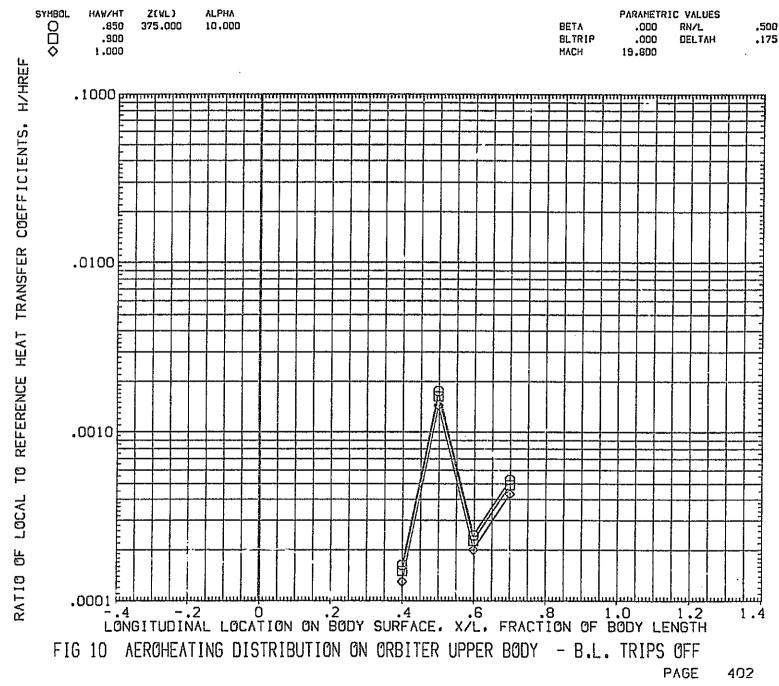


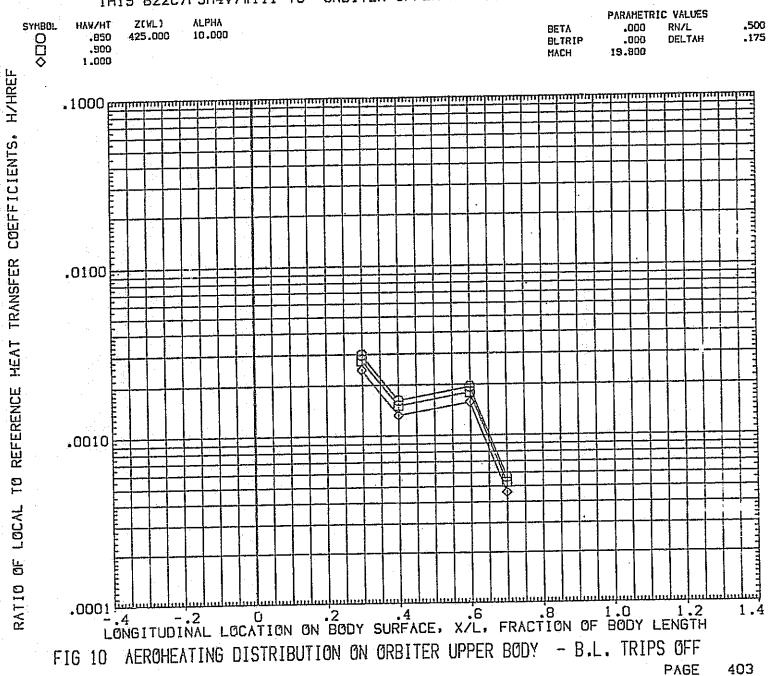


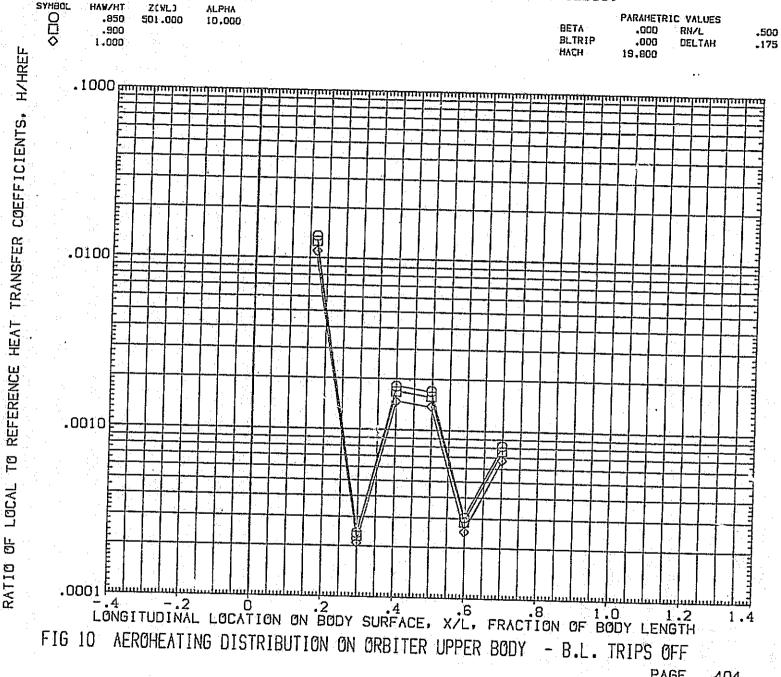
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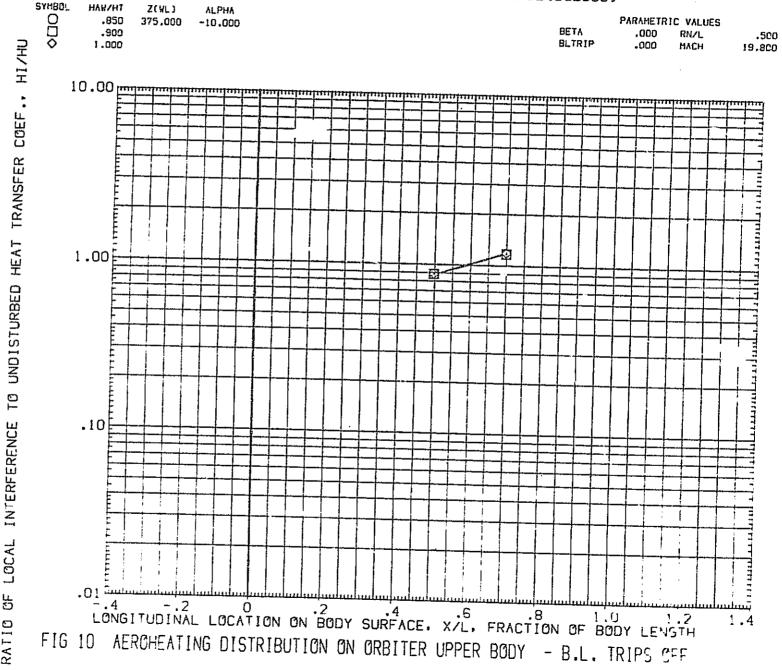


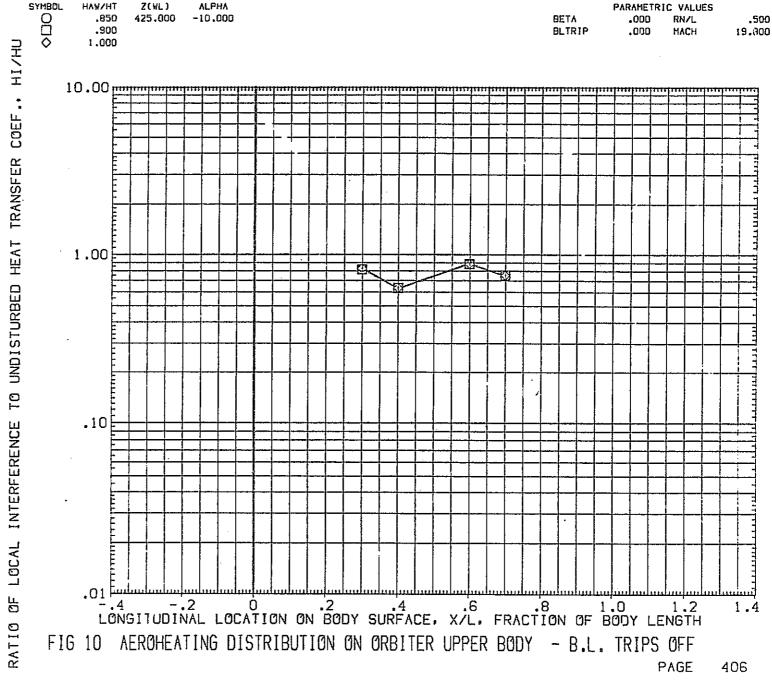




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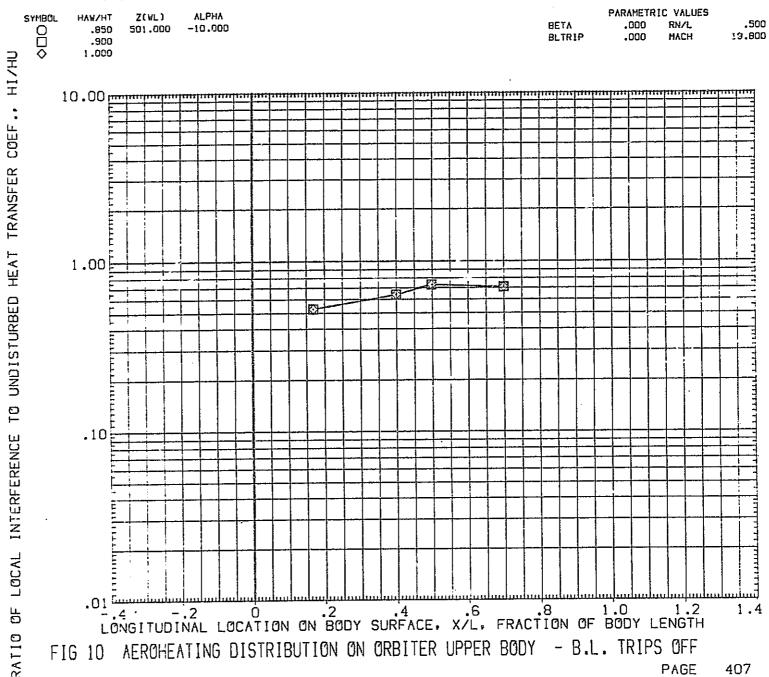
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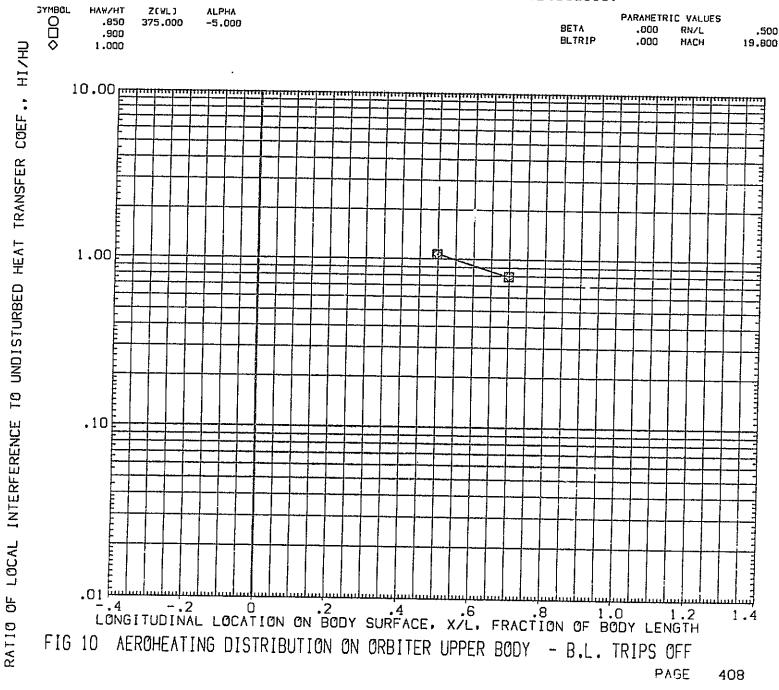


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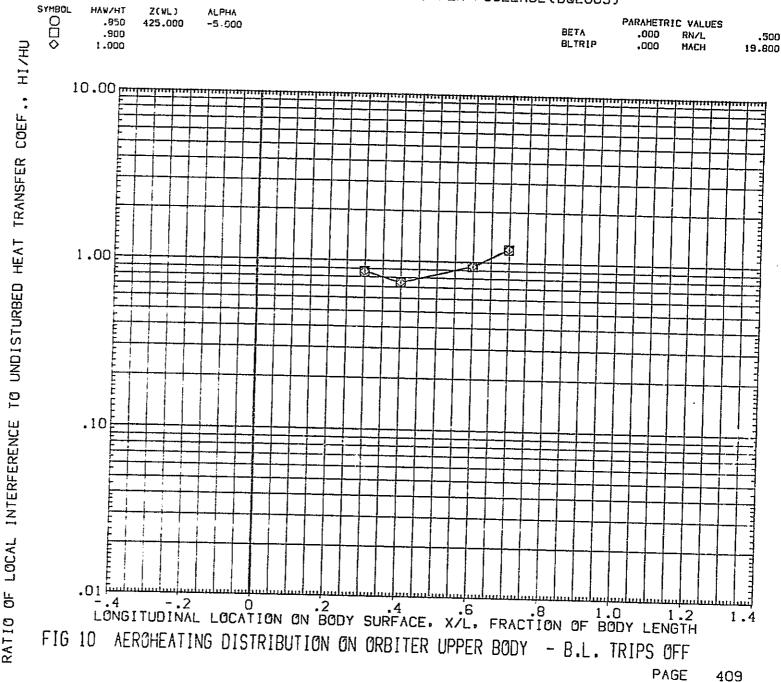
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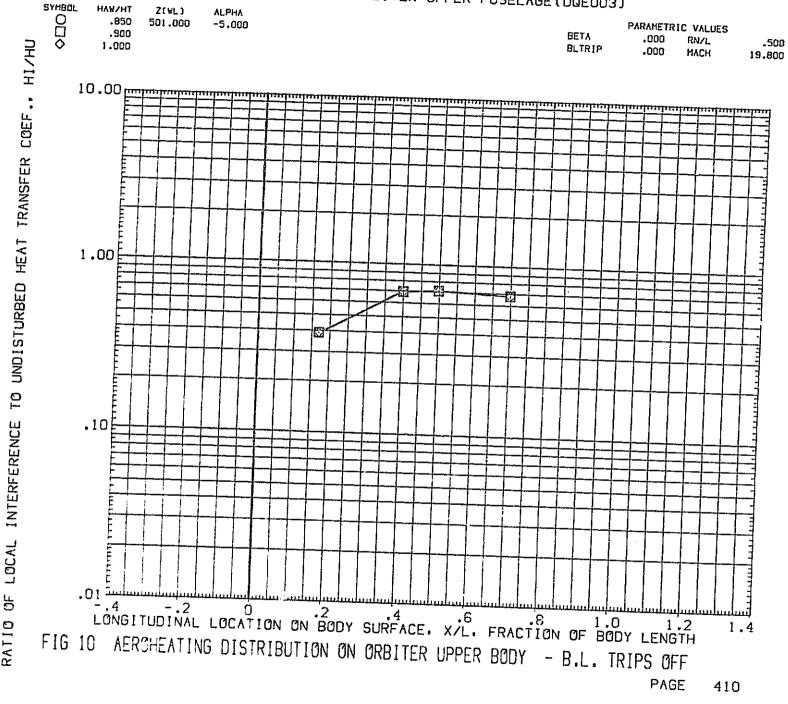
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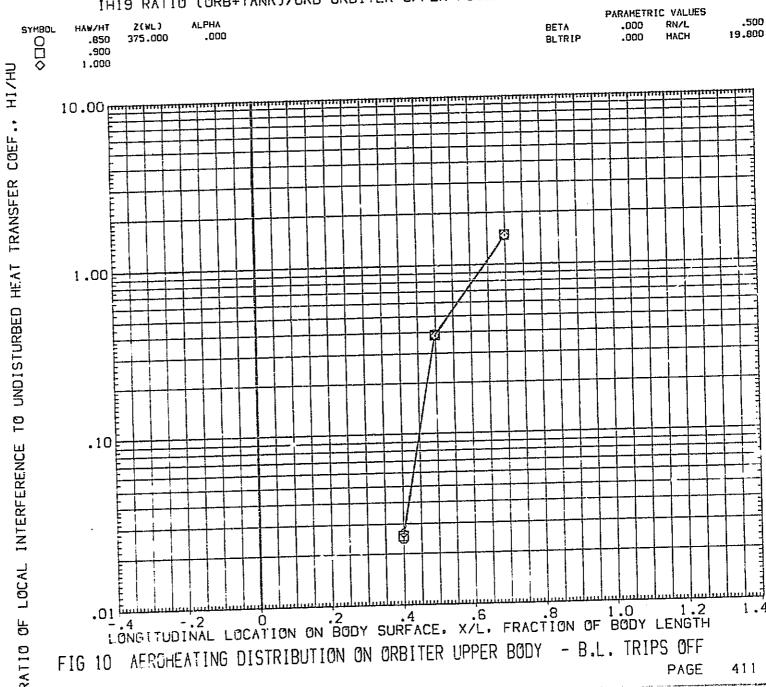


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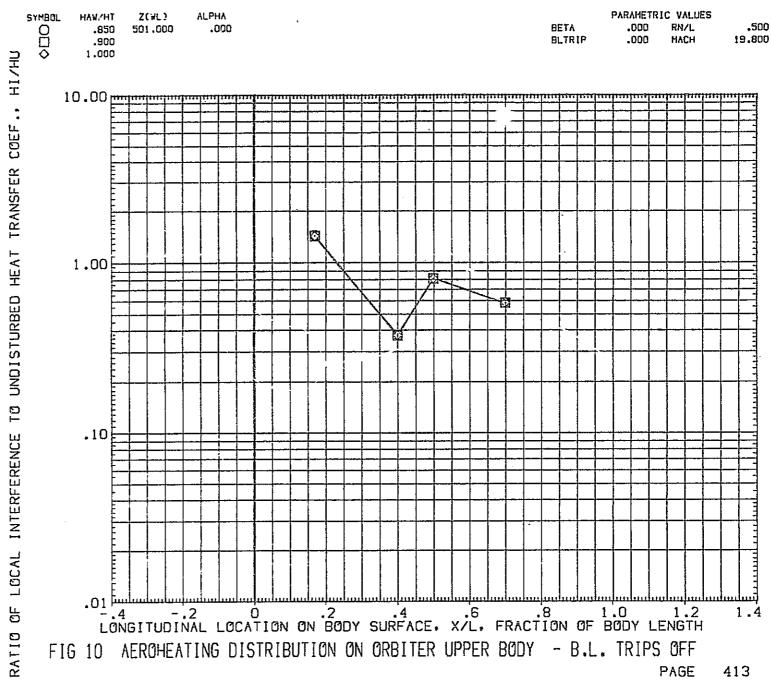




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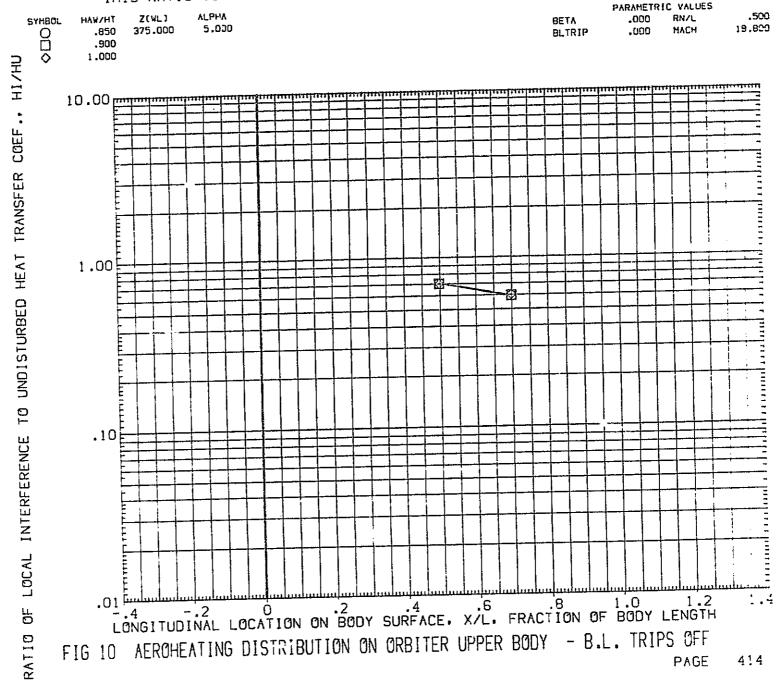
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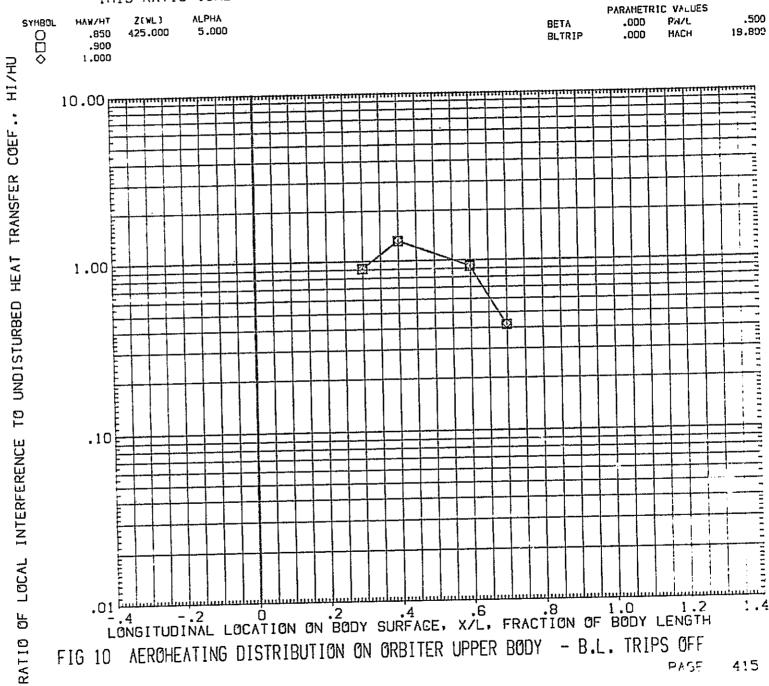
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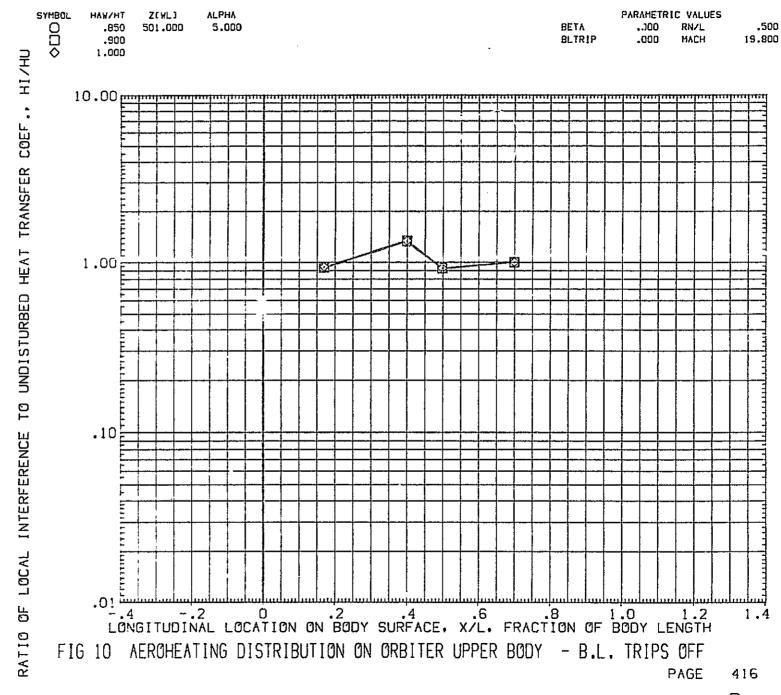


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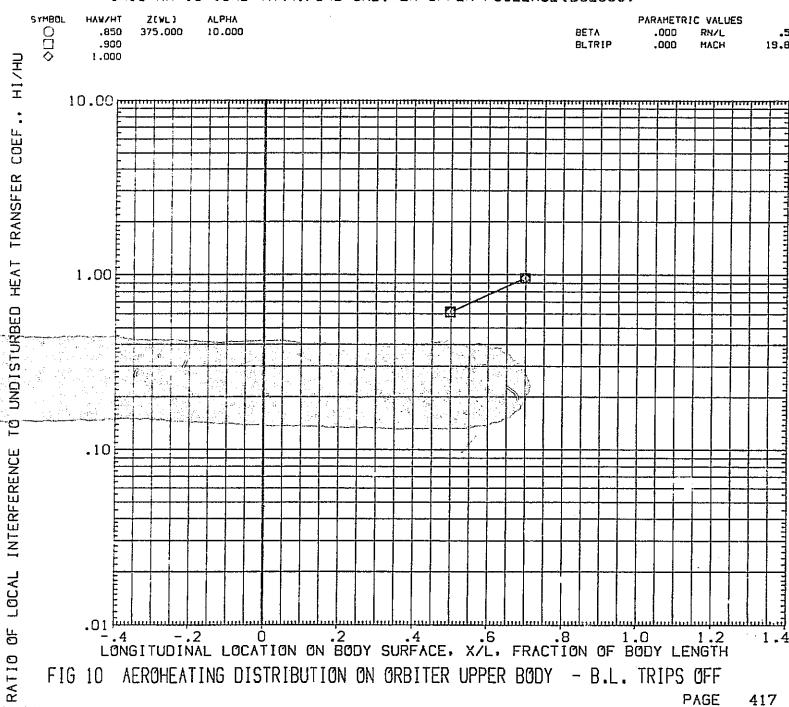
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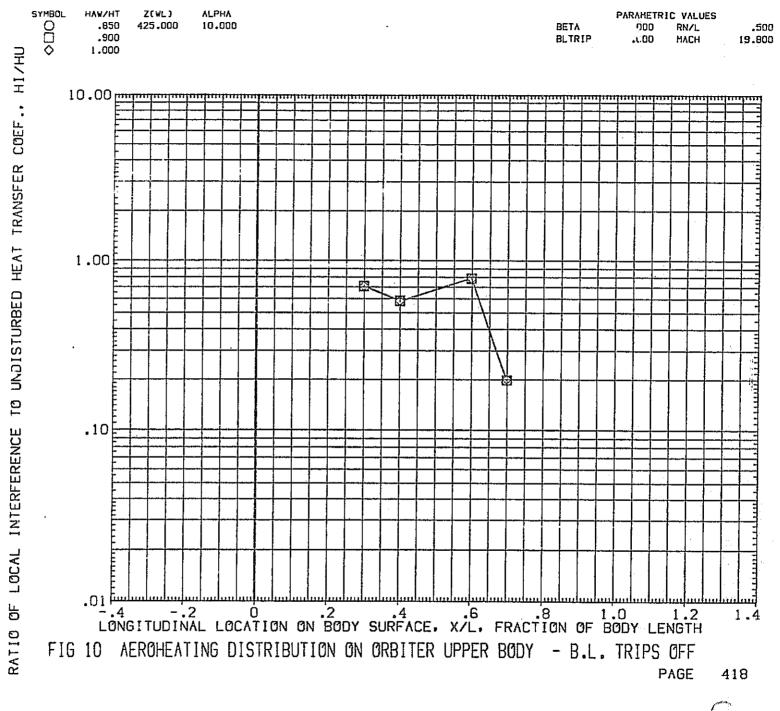


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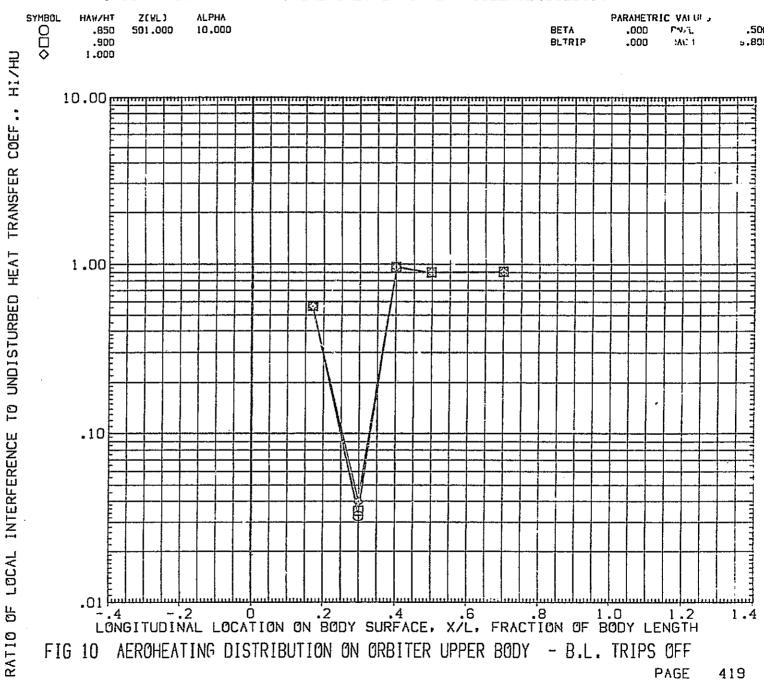


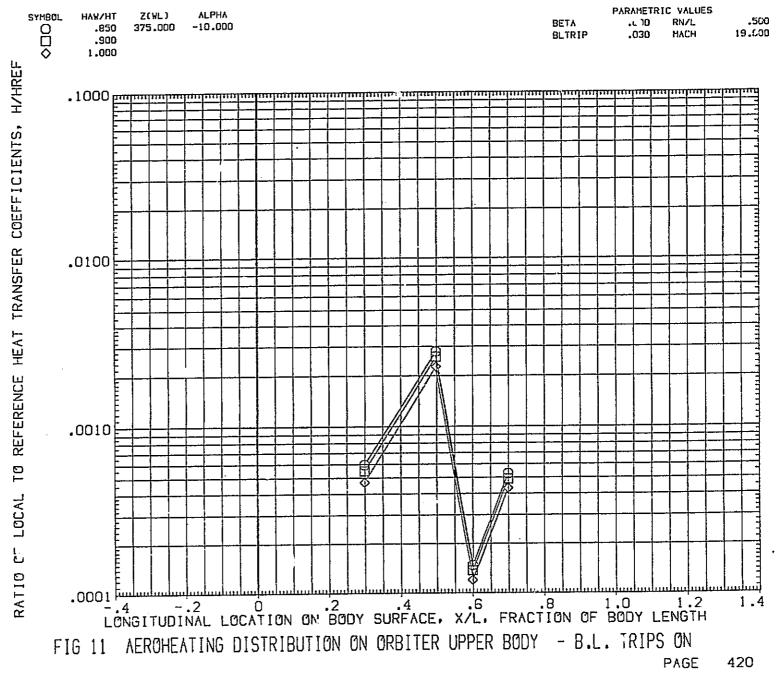
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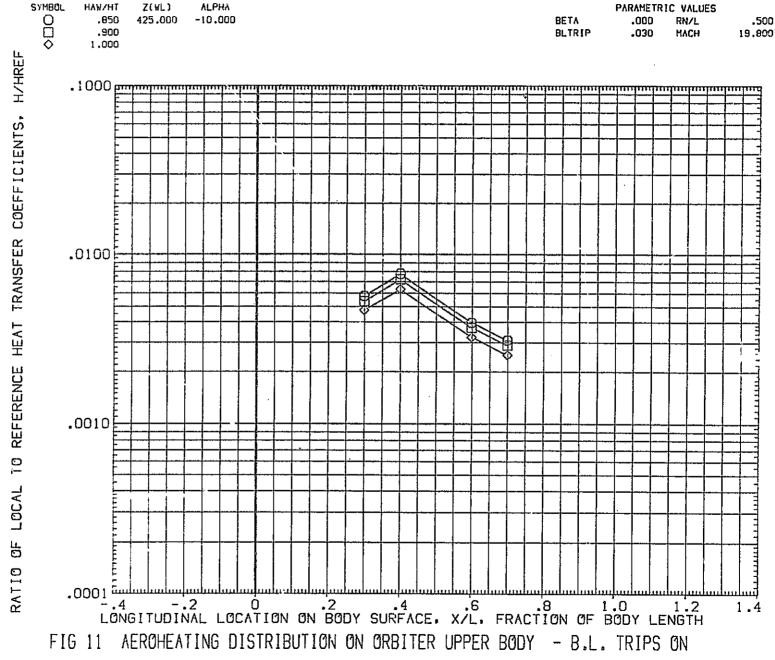
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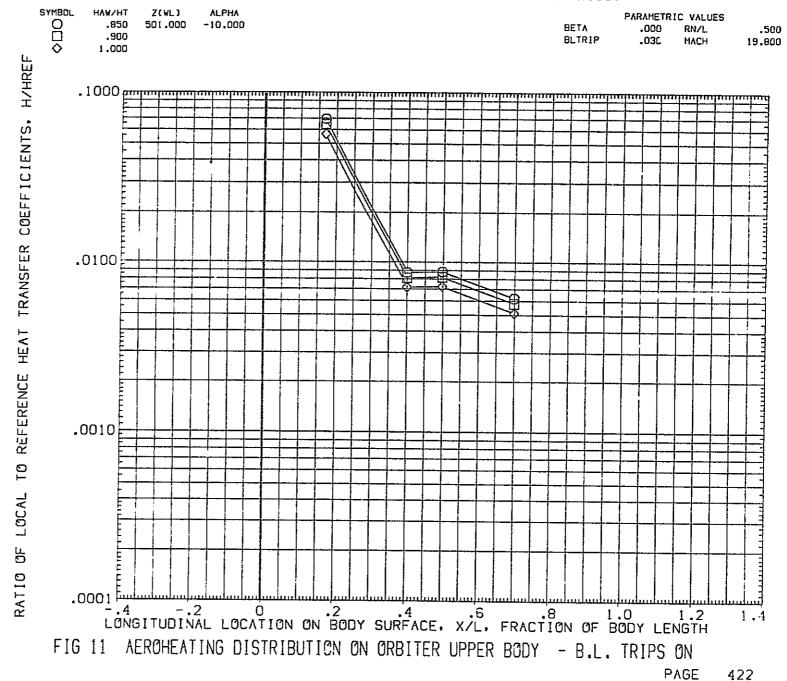






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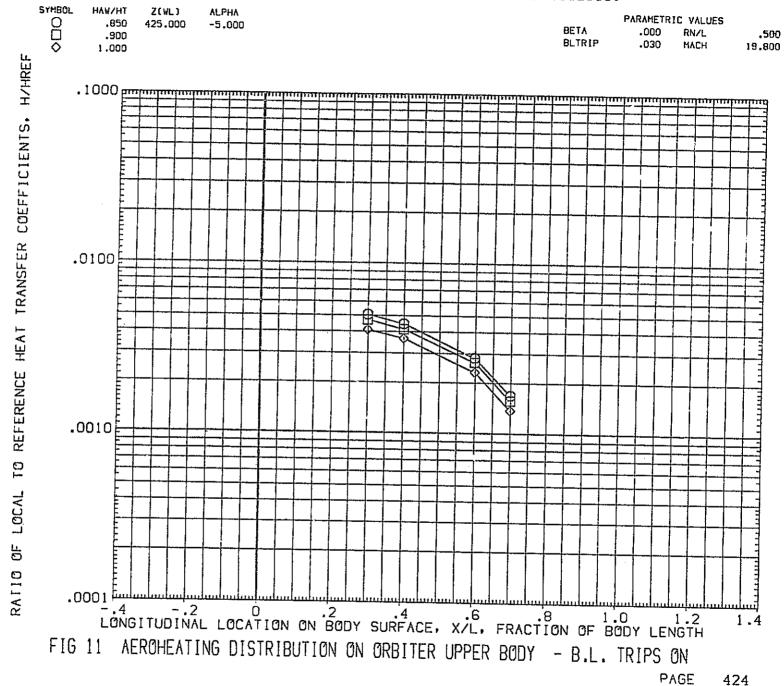


ORBITER UPPER FUSELAGE (SQEU05)

SYMBOL HAWZHT Z(WL) **ALPHA** PARAMETRIC VALUES 000 .850 375.000 -5.000 BETA .000 RN/L .900 .500 BLTRIP .030 MACH 19.800 1.000 COEFFICIENTS, REFERENCE HEAT TRANSFER .0100= .0010 -LOCAL HO H RATIO LONGITUDINAL LOCATION ON BODY SURFACE, X/L, FRACTION OF BODY LENGTH FIG 11 AEROHEATING DISTRIBUTION ON ORBITER UPPER BODY - B.L. TRIPS ON

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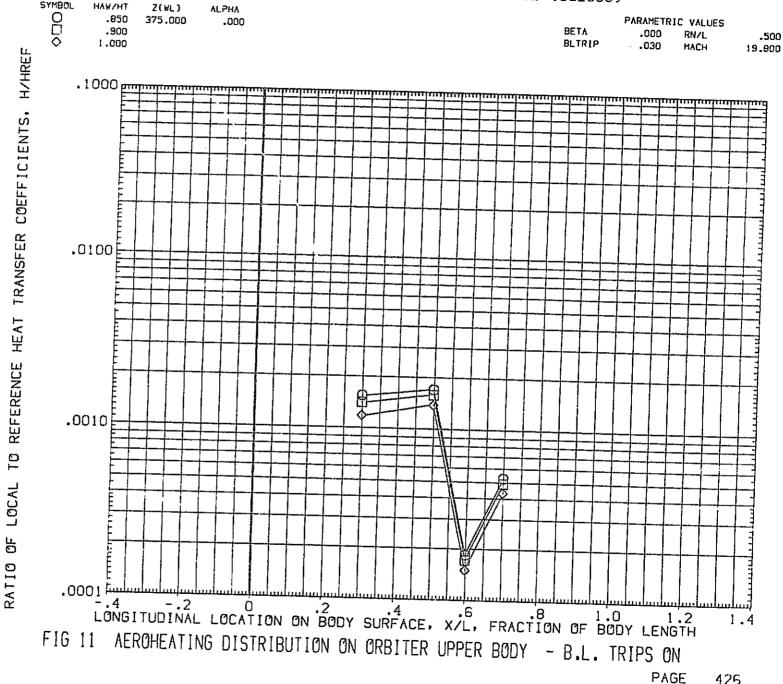
PAGE 423

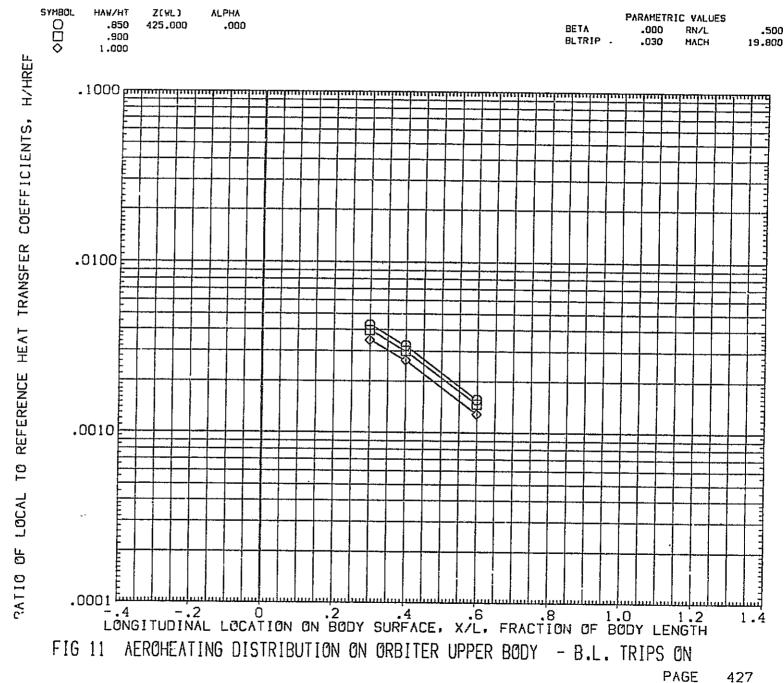


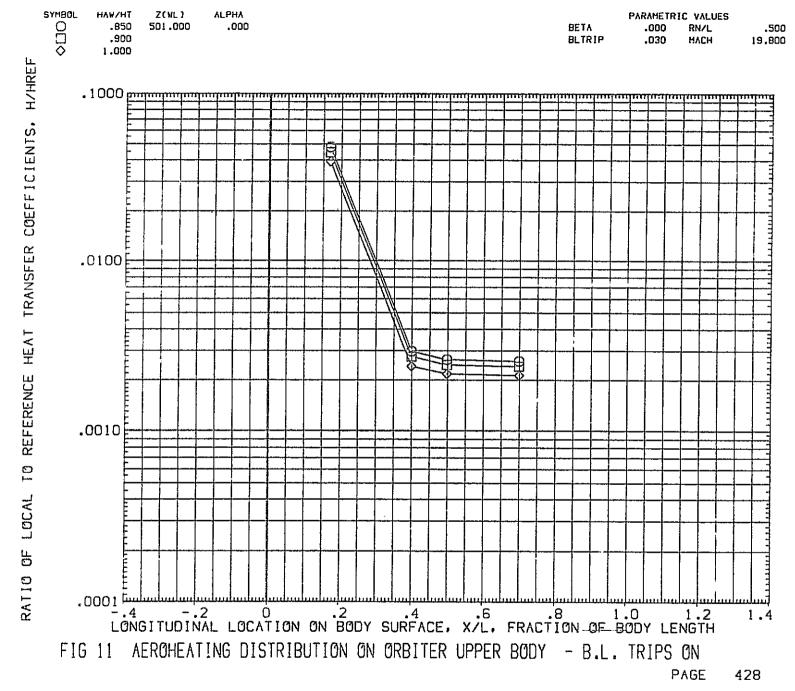


IH19 B22C7F5M4V7W111 ORBITER UPPER FUSELAGE (SQEU05) HAW/HT Z(WL) PARAMETRIC VALUES 000 .050 501.000 BETA .000 RN/L .500 .900 BLTRIP .030 19.800 1.000 COEFFICIENTS, .0100 REFERENCE .0010 -.4 -.2 0 .2 .4 .6 .8 1.0 1.2 LONGITUDINAL LOCATION ON BODY SURFACE, X/L, FRACTION OF BODY LENGTH FIG 1! AEROHEATING DISTRIBUTION ON ORBITER UPPER BODY - B.L. TRIPS ON

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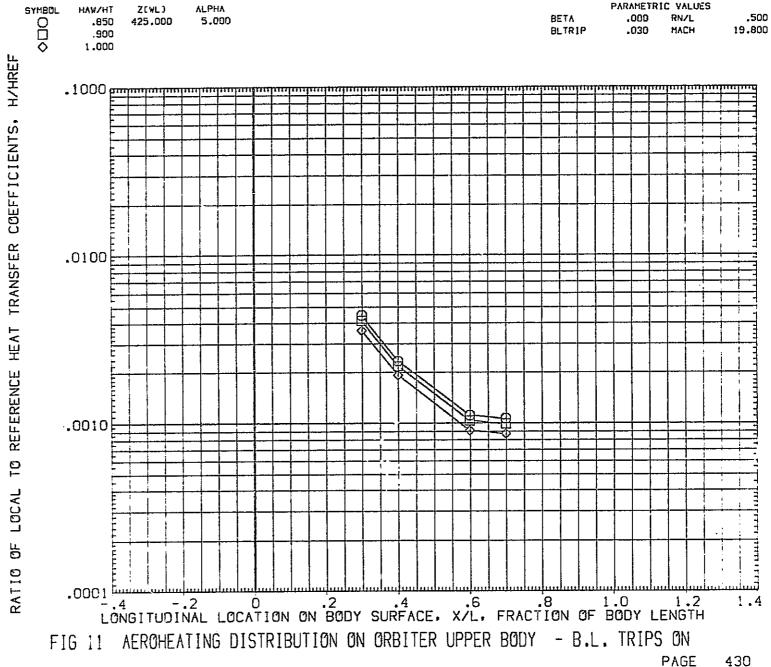




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FIG 11 AEROHEATING DISTRIBUTION ON ORBITER UPPER BODY - B.L. TRIPS ON		_ , ,	L	0N0	FIT	UD	ΙN	۸L	. [.O.	CA	T.	0	N	0	V ···	В		ΙΥ	S	UF	₹F.	۸Ο	E		X /	L.	,	FF	 {V	CT	I											i		-	

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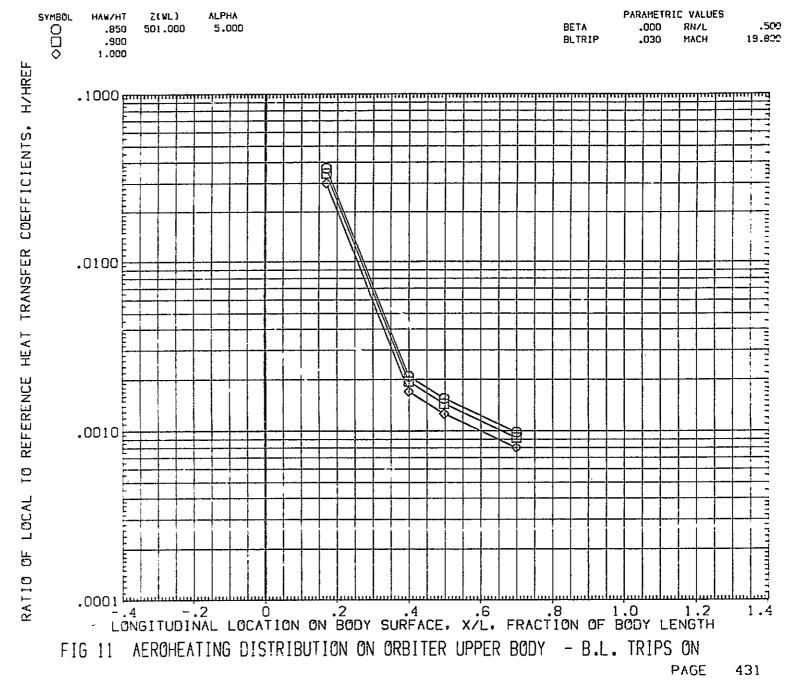
ORBITER UPPER FUSELAGE (SQEU05)

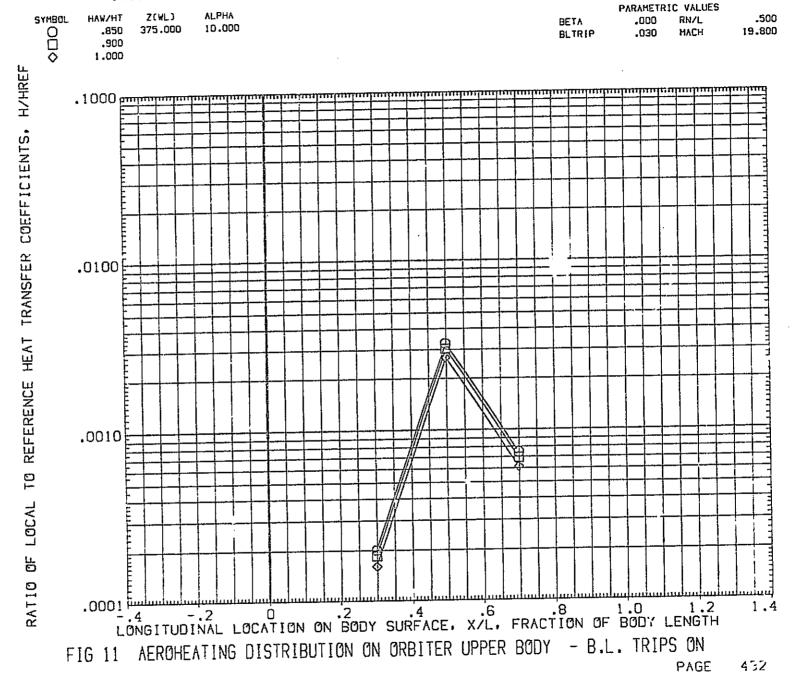


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ORBITER UPPER FUSELAGE (SQEU05)





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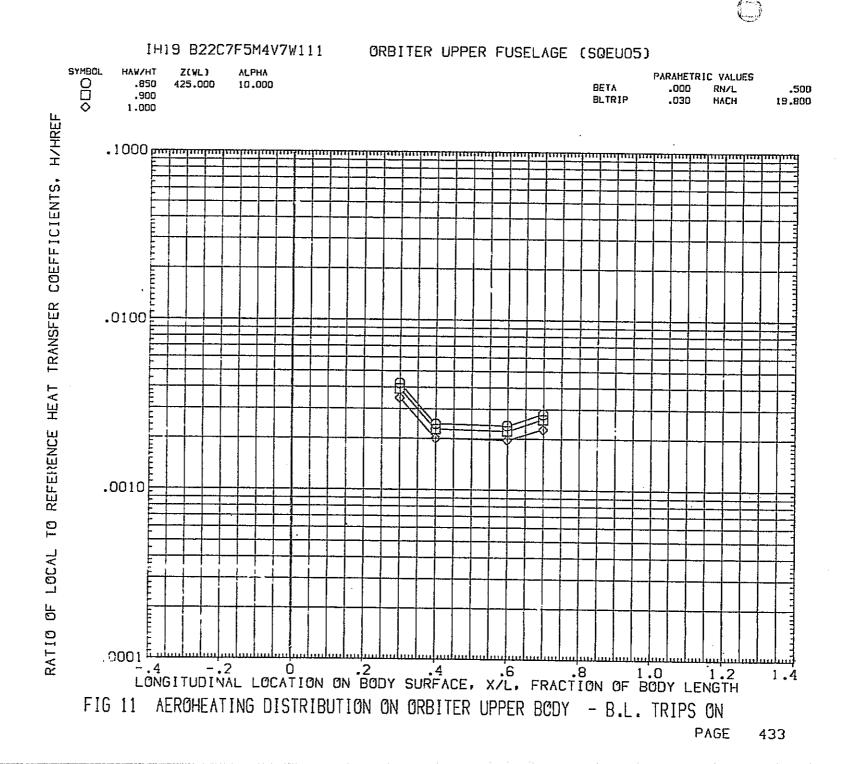
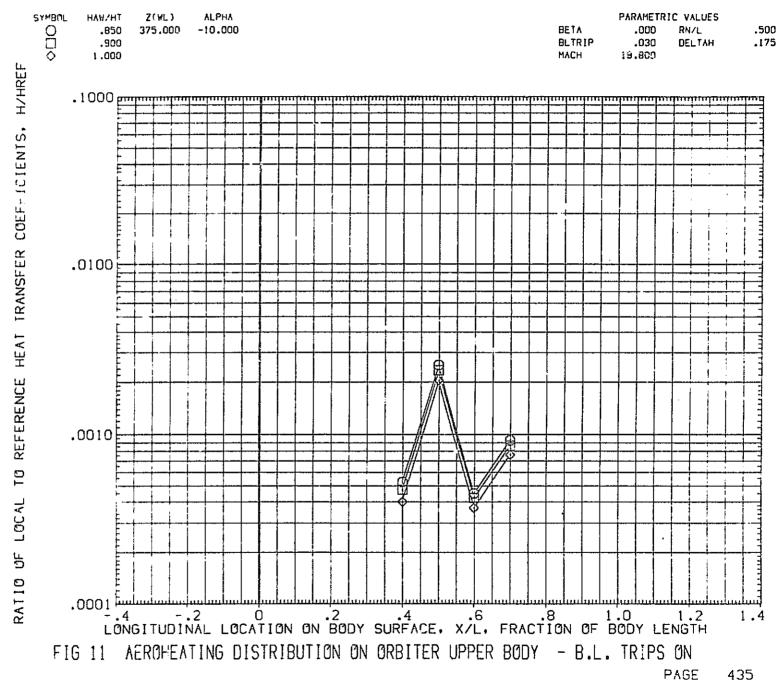


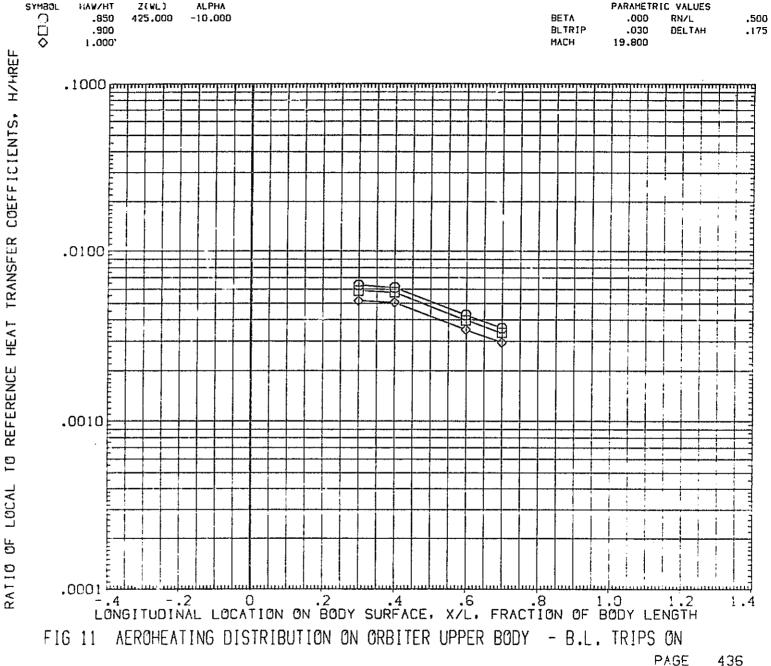
FIG 11 AEROHEATING DISTRIBUTION ON ORBITER UPPER BODY - B.L. TRIPS ON

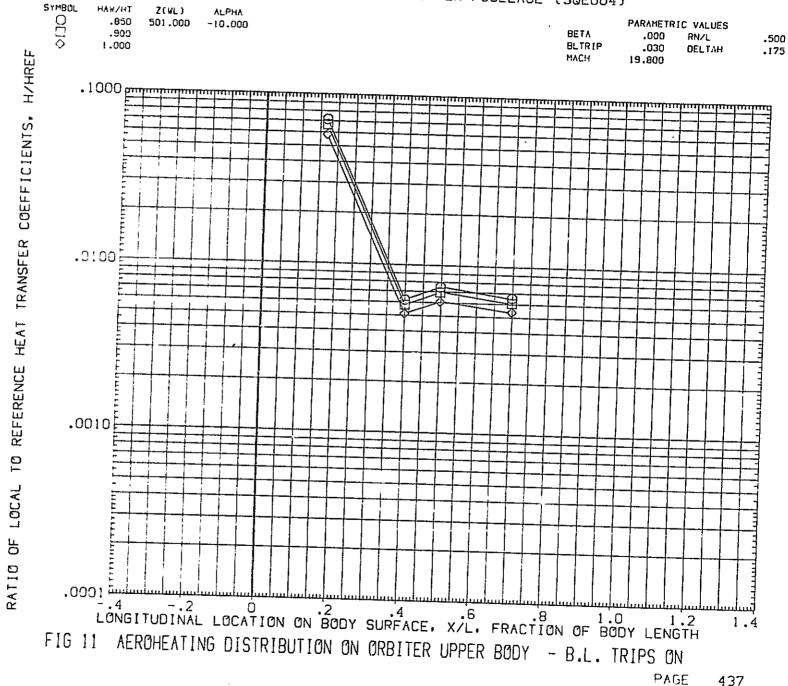
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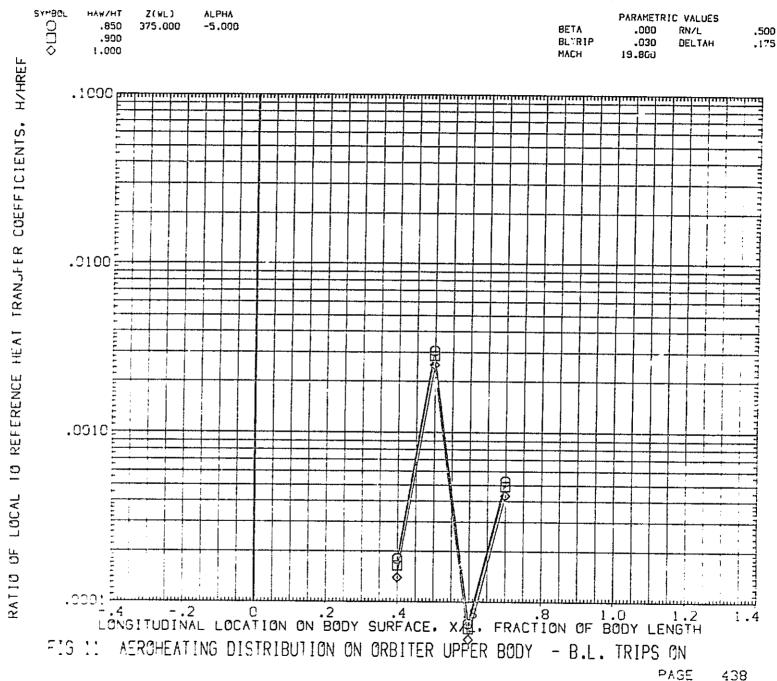
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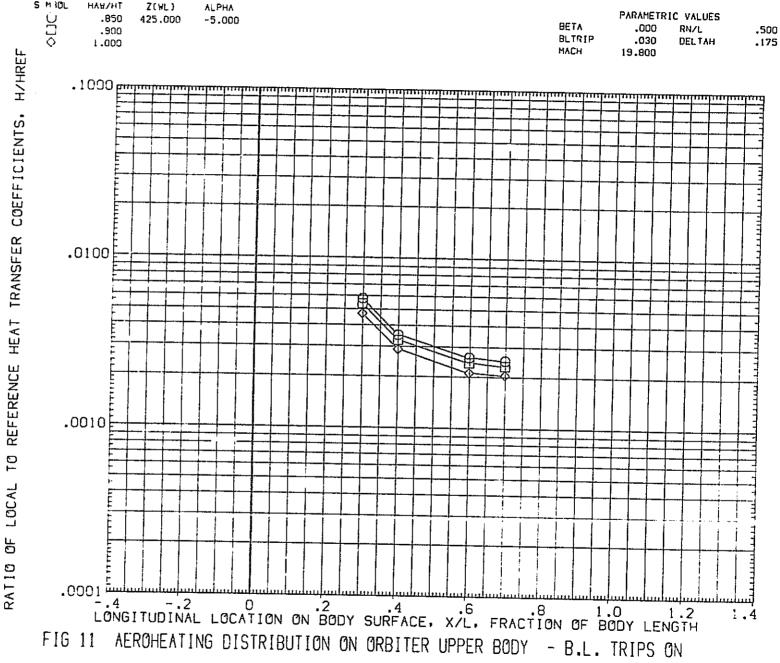




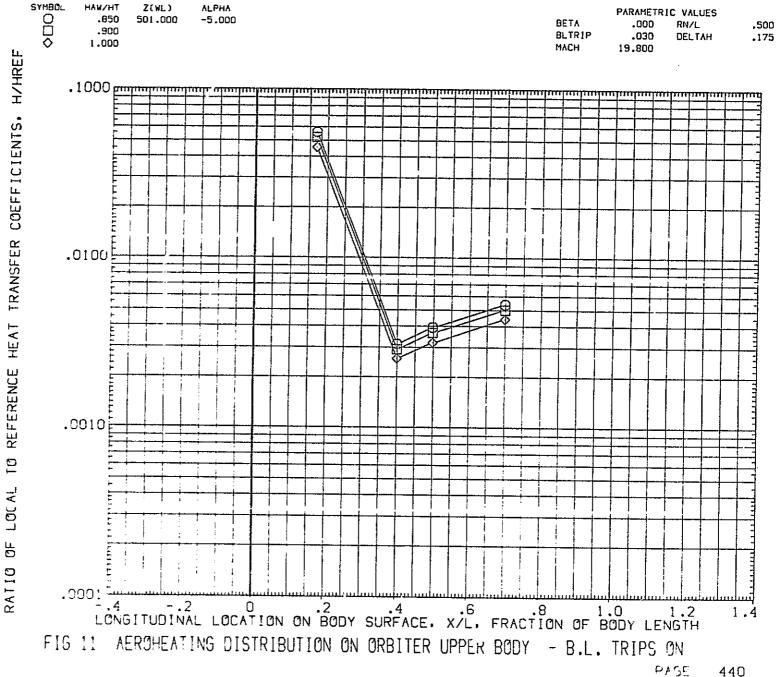




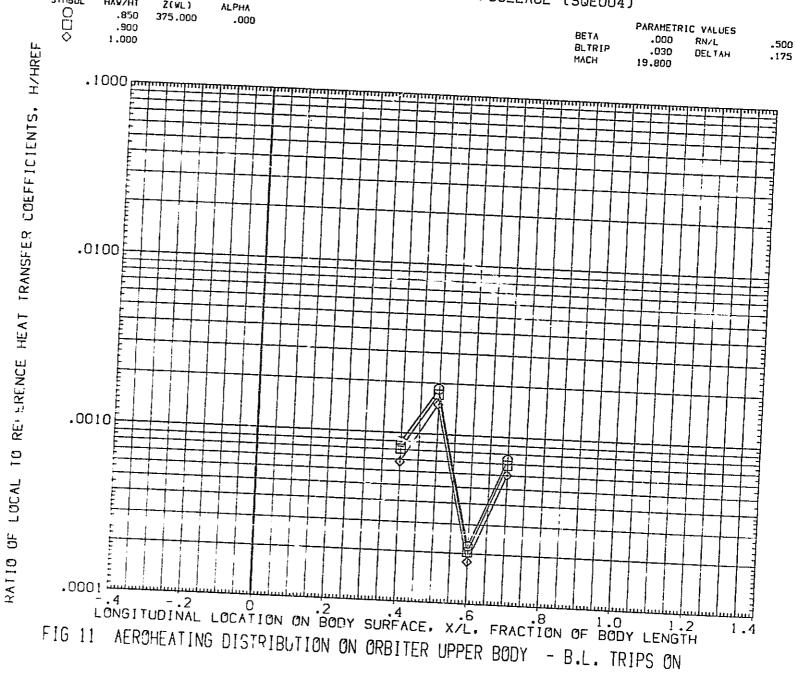




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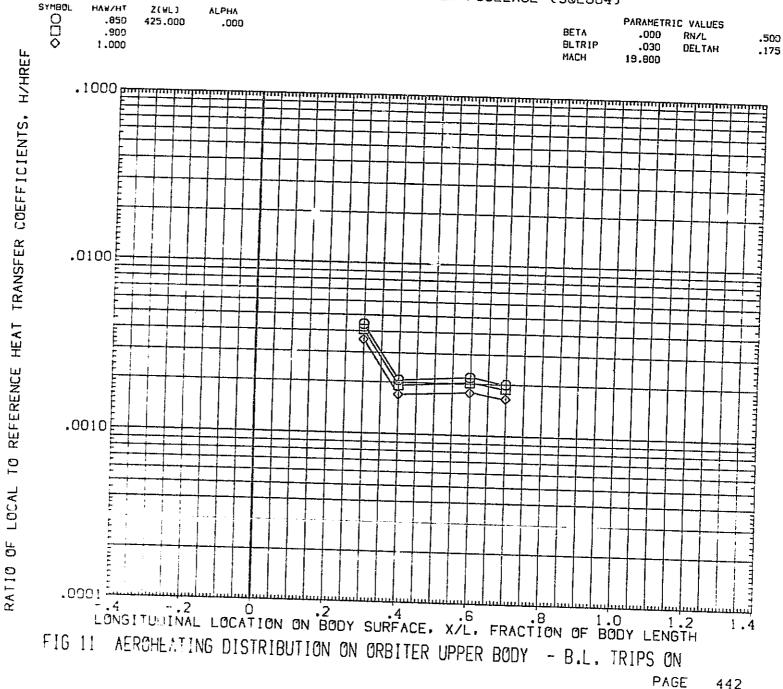
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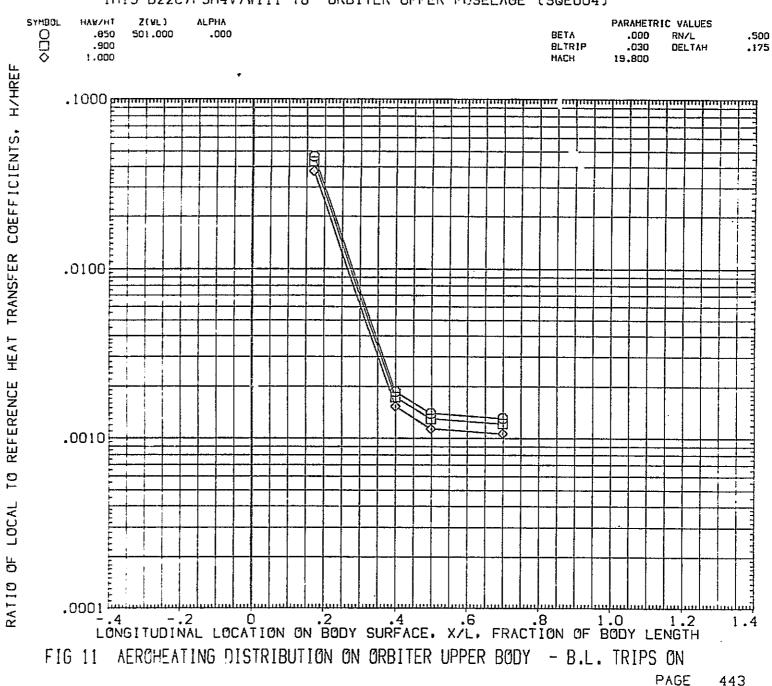
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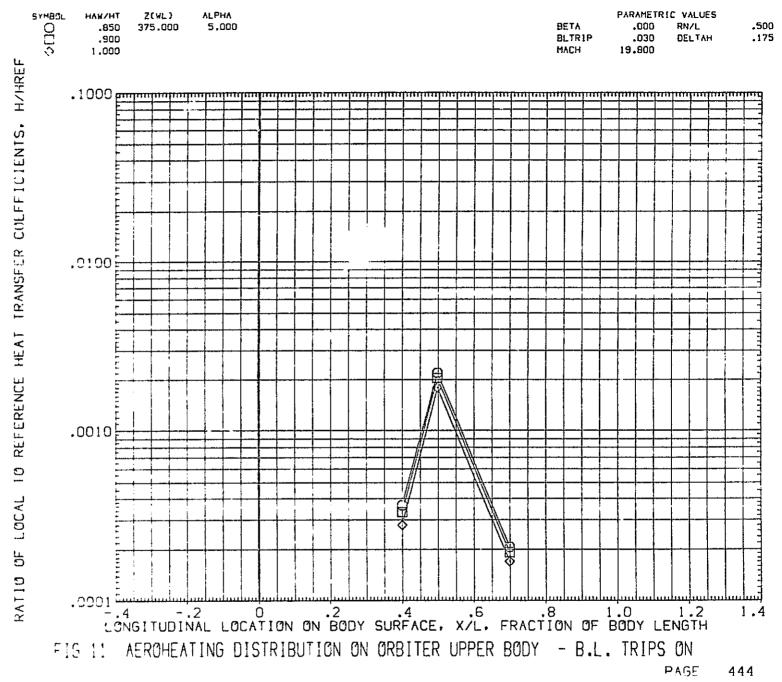
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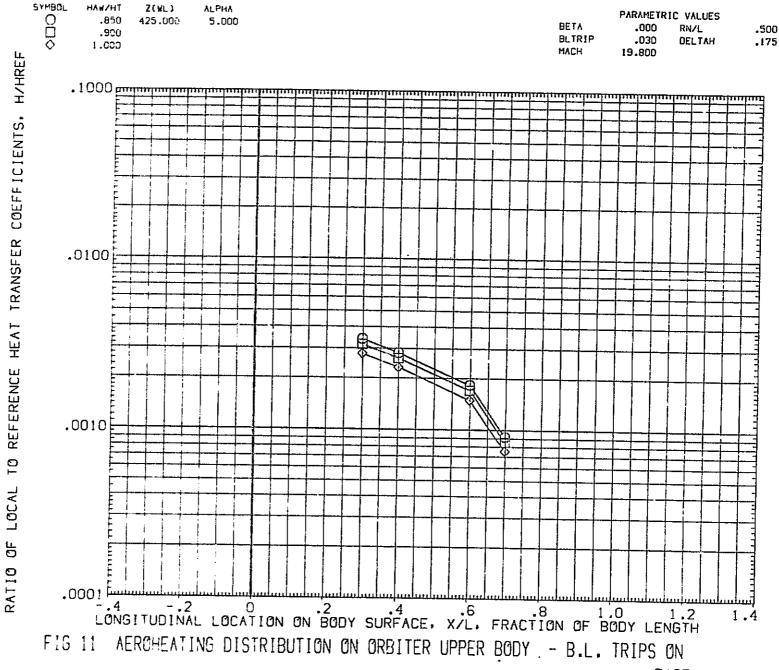












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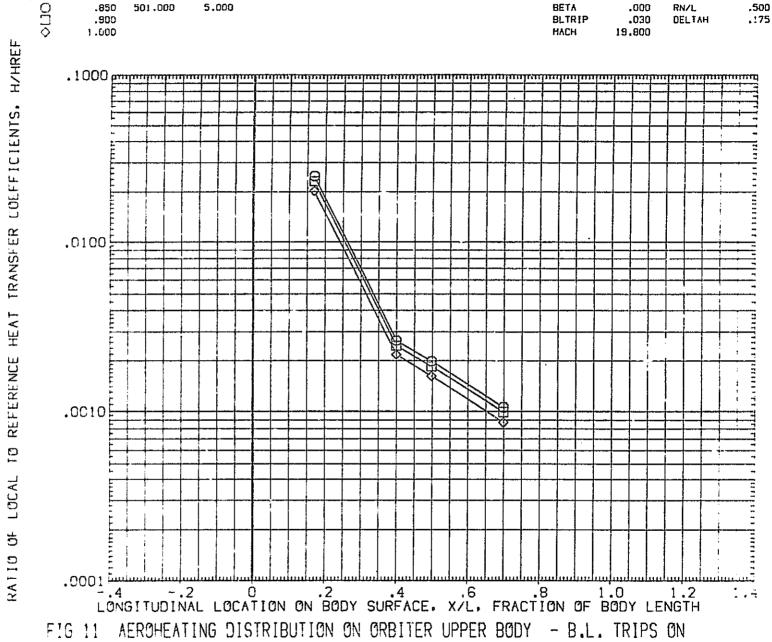
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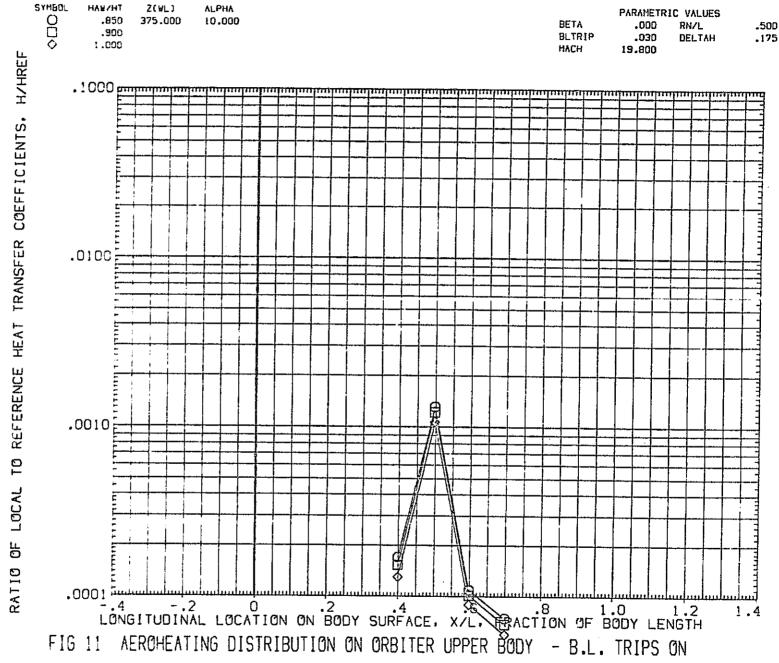
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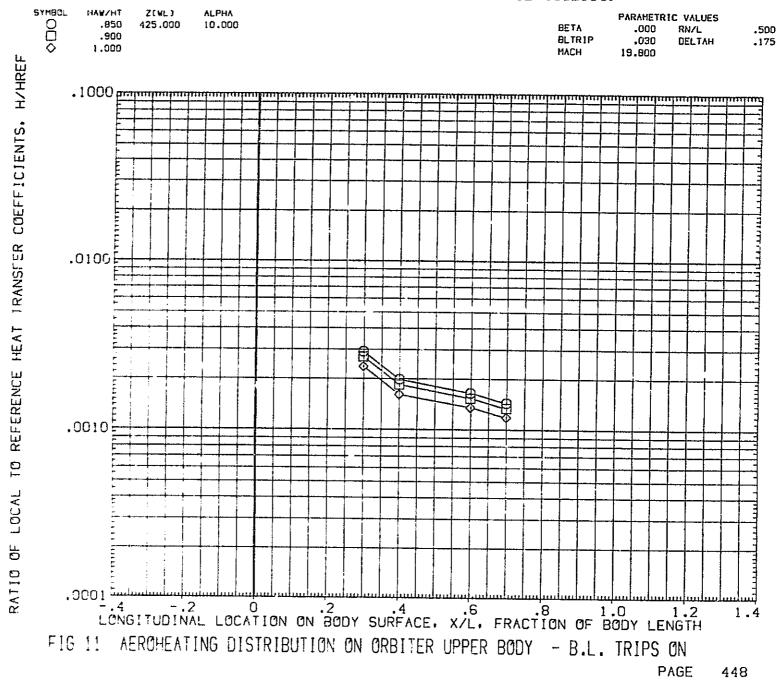
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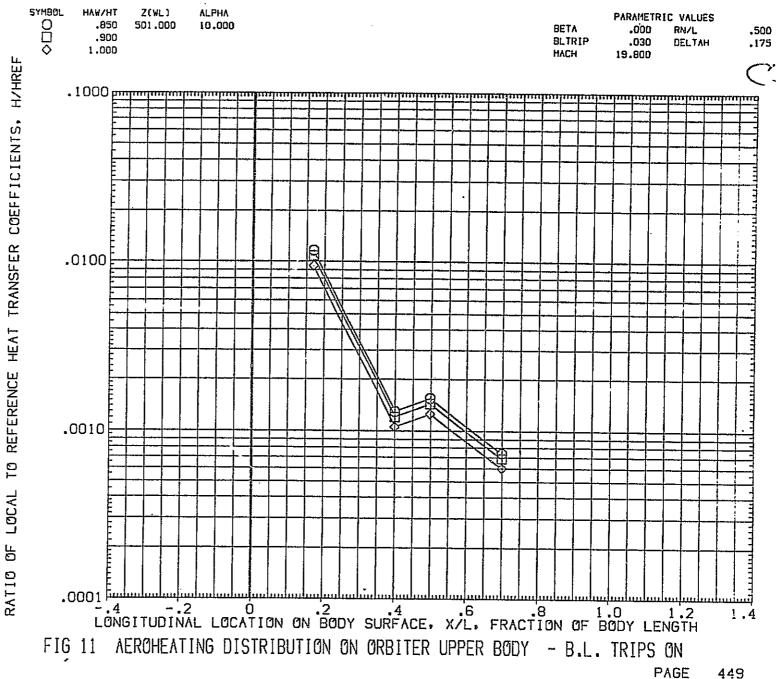




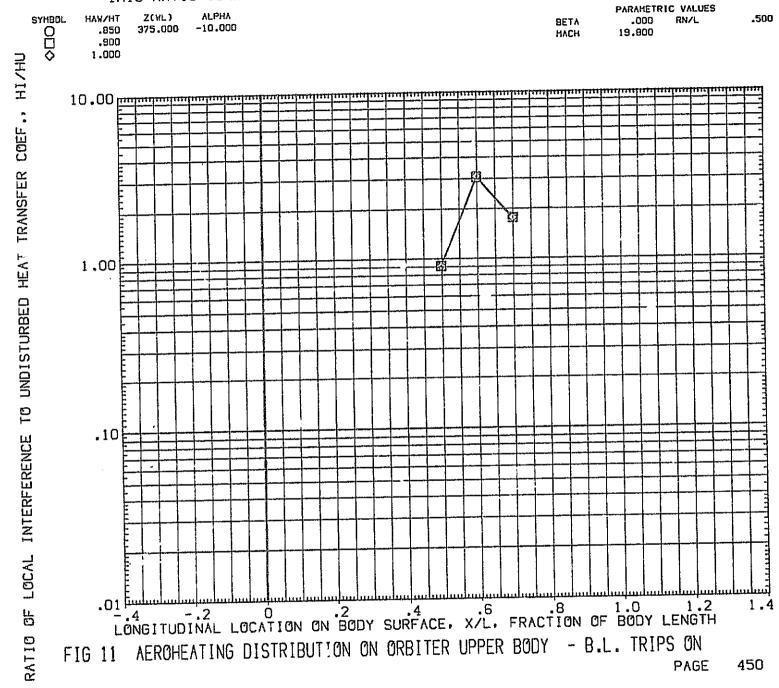
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IH19 RATIO (ORB+TANK)/ORB ORBITER UPPER FUSELAGE (DQEU04)

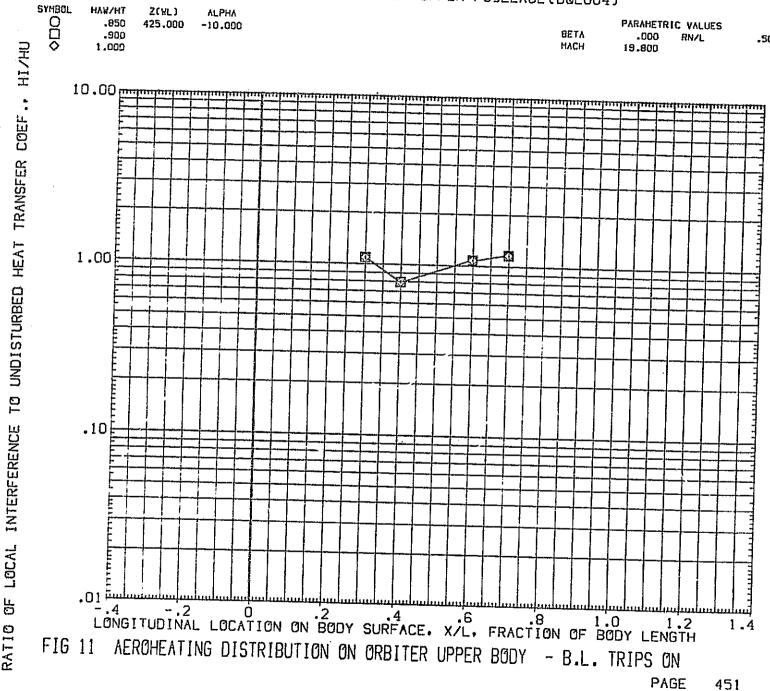


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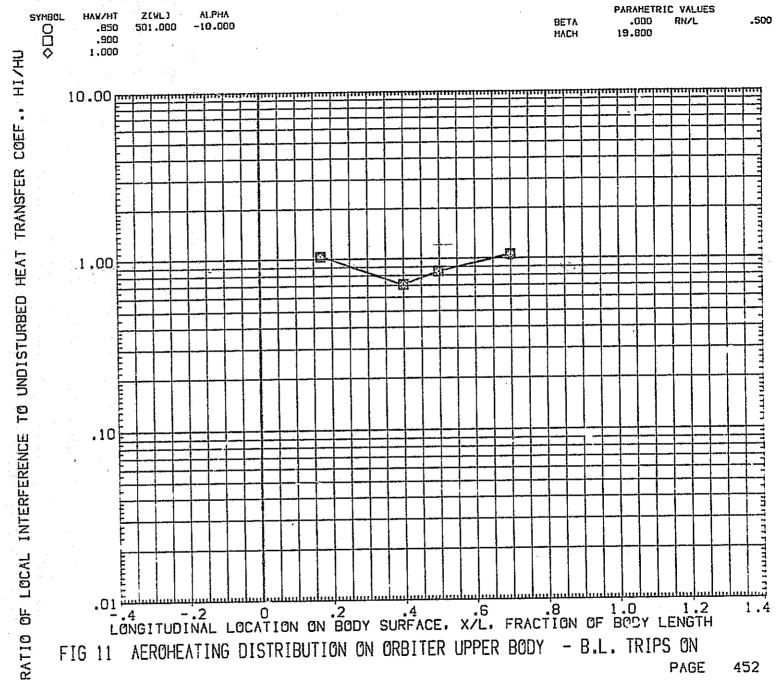
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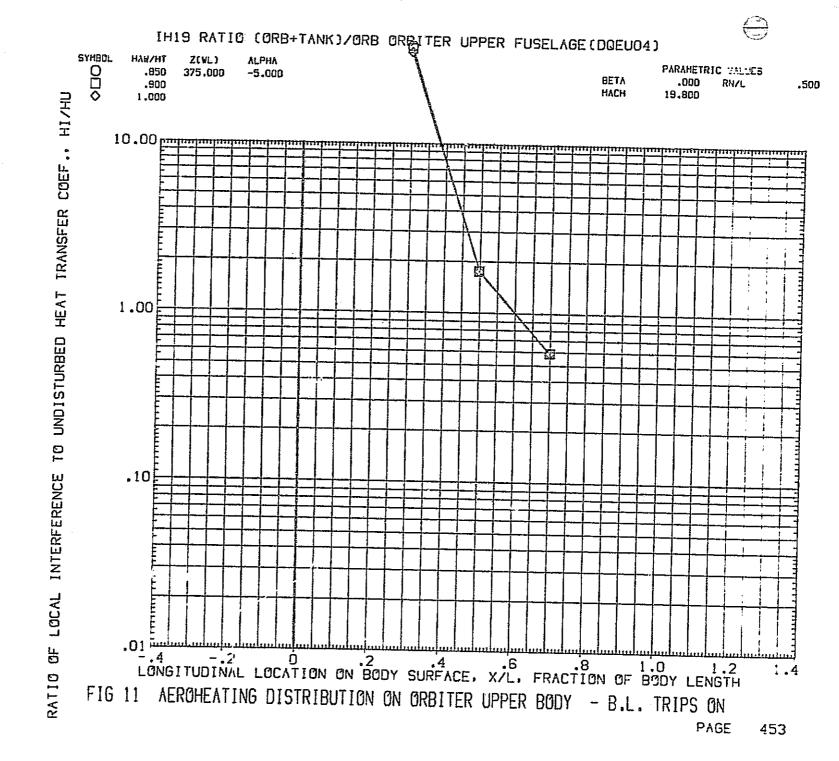
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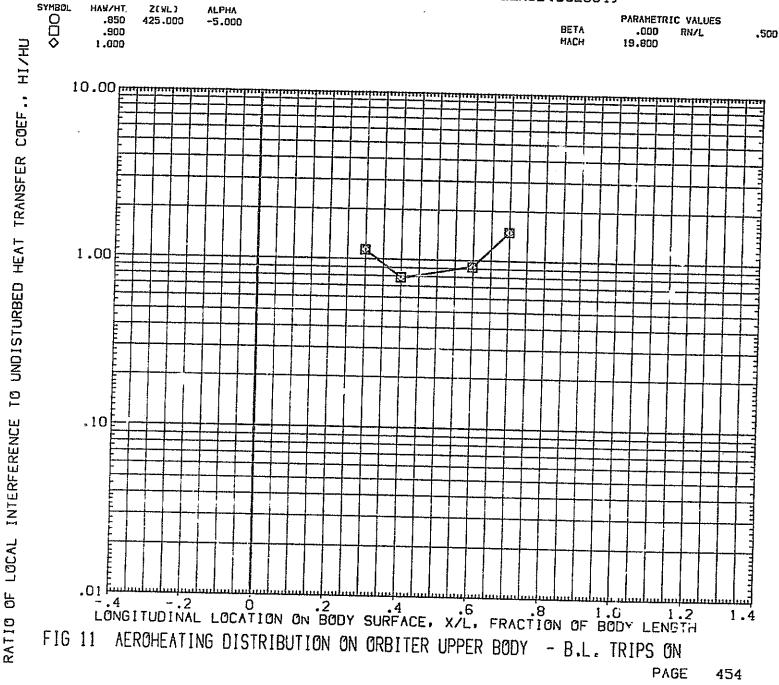


IH19 RATIO (ORB+TANK)/ORB ORBITER UPPER FUSELAGE(DOEU04)





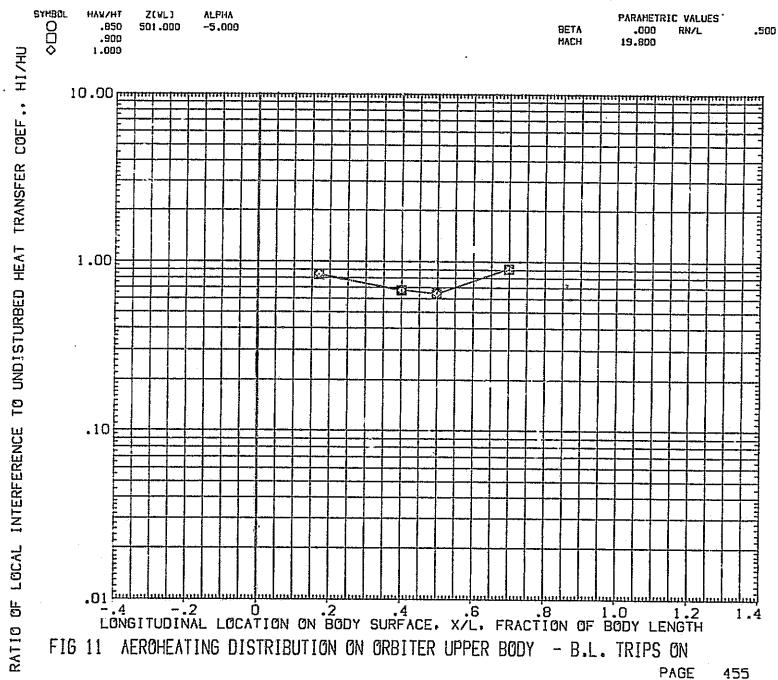
IH19 RATIO (ORB+TANK)/ORB ORBITER UPPER FUSELAGE(DQEUO4)



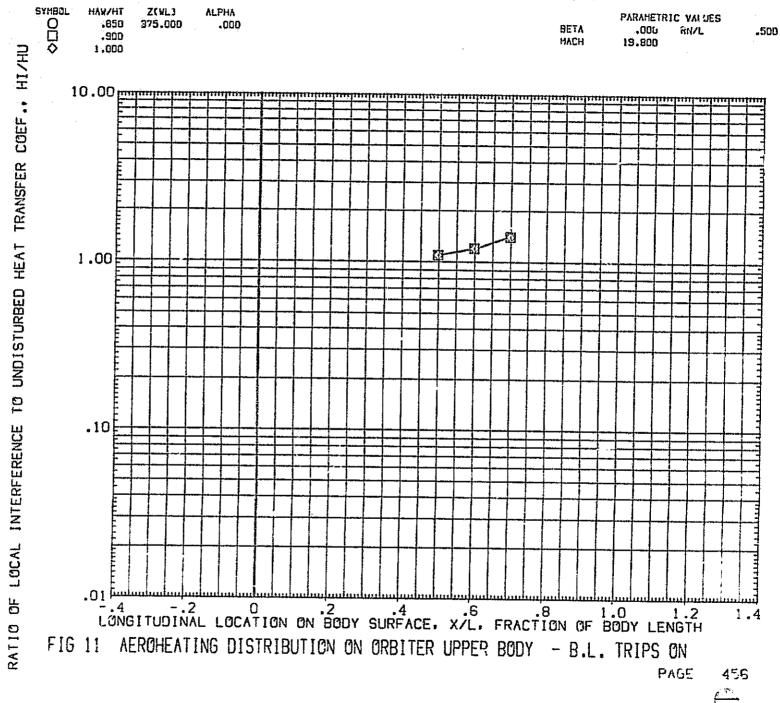




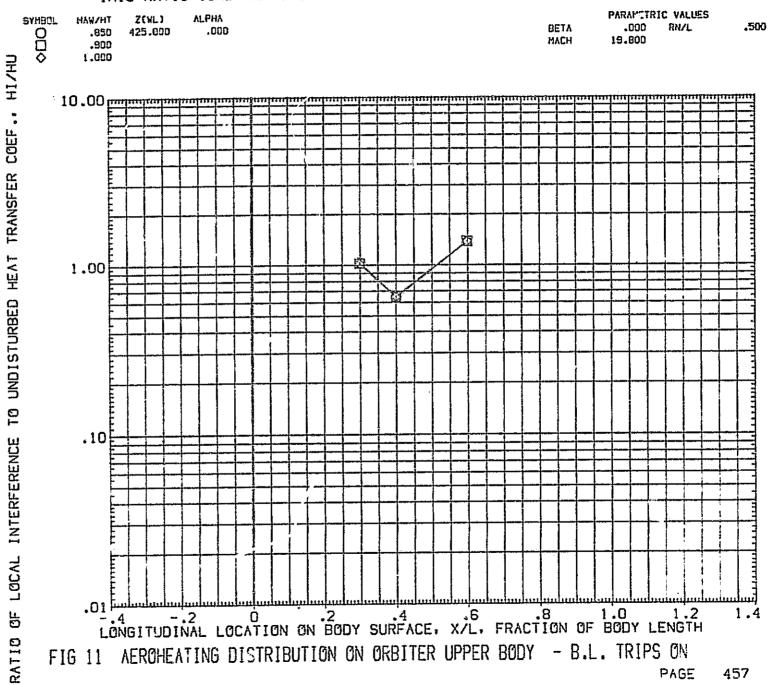
IH19 RATIO (ORB+TANK)/ORB ORBITER UPPER FUSELAGE(DOEU04)



IH19 RATIO (ORB+TANK)/ORB ORBITER UPPER FUSELAGE (DQEU04)

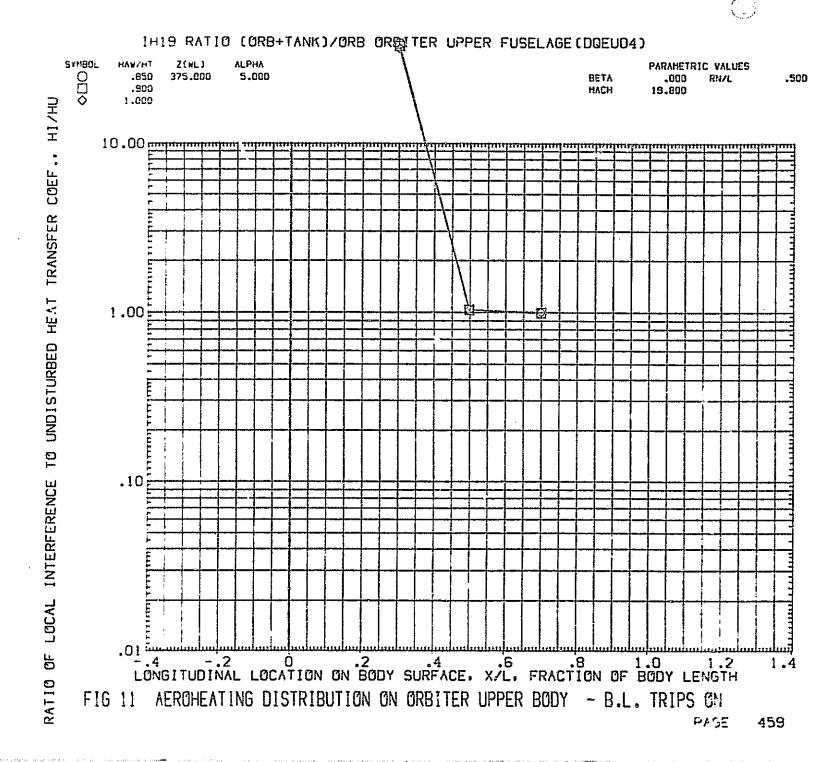


IH19 RATIO (ORB+TANK)/ORB ORBITER UPPER FUSELAGE (DQEUO4)

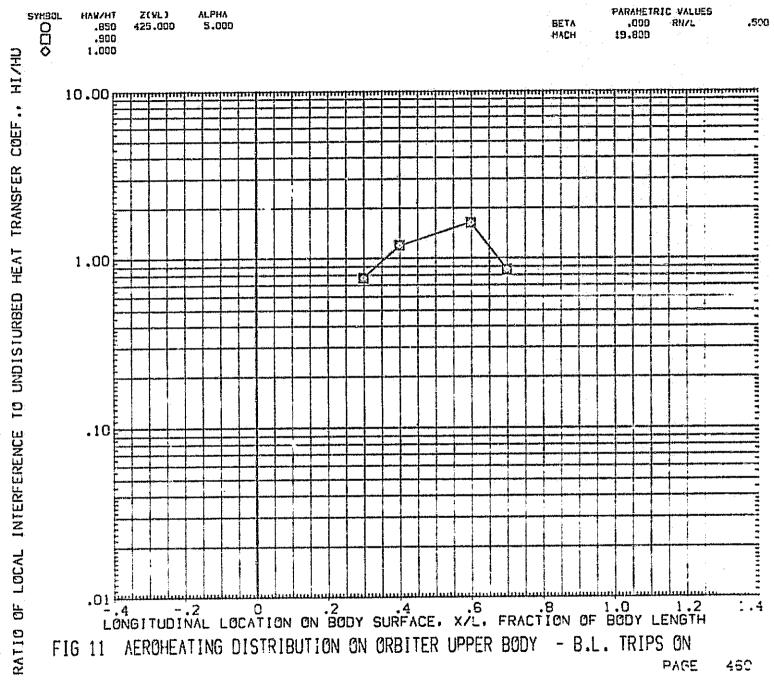


500

LONGITUDINAL LOCATION ON BODY SURFACE, X/L, FRACTION OF BODY LENGTH - B.L. TRIPS ON ВООУ 11 AEROHEATING DISTRIBUTION ON ORBITER UPPER 5 RATIO OF LOCAL INTERFERENCE TO UNDISTURBED HEAT TRANSFER COEF., HIVHU

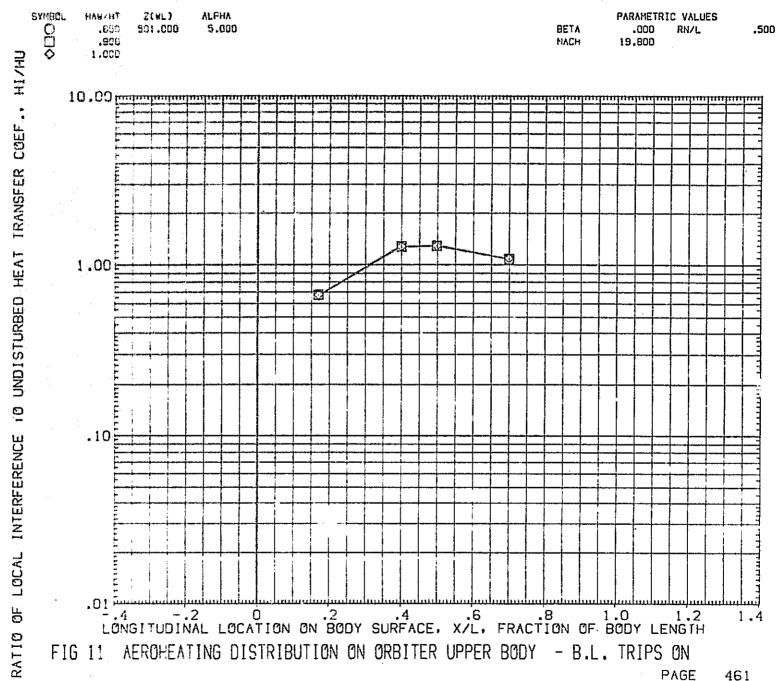


IH19 RATIO (ORB+TANK)/ORB ORBITER UPPER FUSELAGE (DOEU04)





IH19 RATIO (ORB+TANK)/ORB ORBITER UPPER FUSELAGE (DOEU04)



REPRODUCIBILITY OF THE ORIGINAL PAGE IS POOR

SYMBOL.

000

HAW/HT

.850

.900

1.000

375.000

10.000

DUN PAGE 462

PARAMETRIC VALUES

RN/L

.500

.000

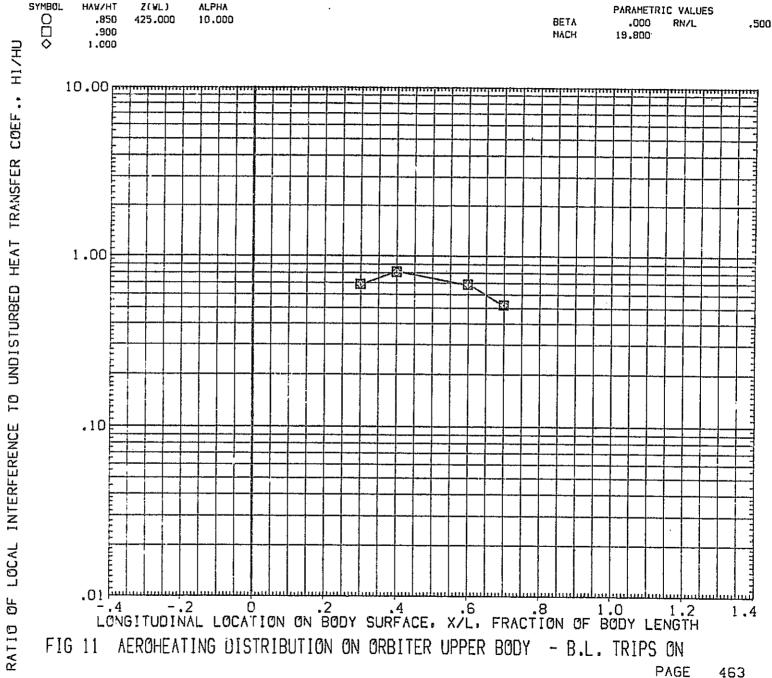
19.800

BETA

MACH

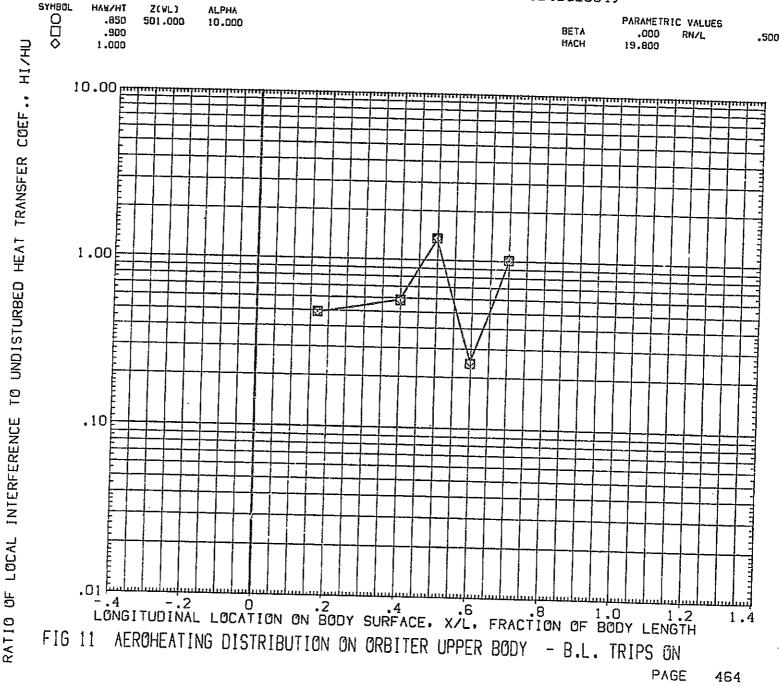


IH19 RATIO (ORB+TANK)/ORB ORBITER UPPER FUSELAGE (DQEUO4)



i kana kana mangangkan kana mangangkan dan kananggan menggan dalah beranggan kananggan beranggan beranggan ber

IH19 RATIO (ORB+TANK)/ORB ORBITER UPPER FUSELAGE(DQEUO4)



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APPENDIX TABULATED SOURCE DATA

Tabulations of plotted data are available on request from Data Management Services.

```
DATE 03 NOV 75
                                TABULATED SOURCE DATA - LACR N2-28 (1419)
                                                                                                                              PAGE
                                           IH19 B22C7F5M4V7W111 TB ORBITER LOWER FUSELAGE
                                                                                                              (ROEB03)
                                                                                                                         ( 03 NOV 75 )
                REFERENCE DATA
                                                                                                         PARAMETRIC DATA
          2690.0000 SQ.FT.
                               XMRP
                                             .0000
          1290.3000 IN.
                                                                                               BETA
                                                                                                              .000
                                                                                                                     RN/L
                               YMRP
                                                                                                                                    .500
                                             .0000
 BREF =
          1290.3000 IN.
                                                                                               BLTRIP =
                                                                                                              .000
                                                                                                                     DELTAH =
                               ZMRP
                                                                                                                                    .175
                                             .0000
 SCALE =
                                                                                              MACH
                                                                                                           19.800
               .0060
 ALPHA(1) = -10.000
                           HAH/HT(1) =
                                              .850
                                                               .36800
                                                                                      4011.8
                                                                                                 TO
                                                                                                         = 3009.6
                                                                                                                                   .51000-01
  SECTION ( 1)BODY
                                              DEPENDENT VARIABLE HYHREF
 Y(BP)
              .0000117.0000
   X/L
     .025
              .0493
     .050
              .0236
     .075
              .0164
     .100
              .0134
     .125
              .0122
     . . 50
             .0133
     .175
             .0152
     .200
.250
.300
             .0152
             .0130
             .0113
             .0099
                      .0047
     .400
             .0039
                      .0051
     .450
             .0078
     .500
             .....
                      .0042
     .550
             .0055
     .600
             .0044
                      .0029
     .650
             .0004
     .700
             .0017
                      .0020
     .750
             .0011
     800
             .0007
                      .0010
     .850
             .....
     .900
             .0000
                      .0008
    .950
           .....
   1.000
             .0001
                      .0005
   1.040
             .0003
ALPHA ( 1) = -10.000
                          = (S )TH\WAH
                                                   RN/L
                                                              .36900
                                                                                     4011.8
                                                                                                           3009.6
                                                                                                TO
                                                                                                                                  .51000-01
 SECTION ( 1)BODY
                                             DEPENDENT VARIABLE HIHREF
Y(8P)
             .0000117.0000
  X/L
```

.025

.050

.075

.100

- 125

.0458

.0220

.0152

.0125

.0114

```
DATE 03 NOV 75
                                                                                                                                   PAGE
                                                                                                                                            2
                                TABULATED SOURCE DATA - LACE N2-28 (1H19)
                                            IHI9 822C7F5M4V7WIII T8 ORRITER LOWER FUSELAGE
                                                                                                                   (RQEBO3)
ALPHA ( 1) = -10.000
                            HAH/HT( 2) =
 SECTION ( 1)BODY
                                                DEPENDENT VARIABLE H/HREF
Y(8P)
             .0000117.0000
 X/L
    .150
             .0124
    .175
             .0141
             .0142
    .250
.300
.350
             .0121
             .0105
              .0092
                      .0044
              .0083
                      .0048
    .450
              .0072
    .500
.550
.600
                      .0040
             .0052
              .0041
                      .0027
    .550
.700
              .0004
              .0016
                      .0019
    .750
              .0010
    .800
.850
              .0006
                      .0009
    .900
              .0000
                      .0007
    .950
             .....
              .0001
   1.000
                      .0006
   1.040
              .0003
ALPHA ( 1) = -10.000
                            HAW/HT( 3) =
                                                                                       = 4011.8
                                                                                                                 3009.6
                                                                                                                                        .5:000-01
                                              1.000
                                                      RN/L
                                                                  .36800
 SECTION ( 1)BODY
                                                DEPENDENT VARIABLE HYHREF
Y(BP)
             .0000117.0000
  X/L
    .025
              . 1400
    .050
              .0193
    .075
              .0134
    -130
              .0110
    .125
.150
.175
.200
.250
.350
.350
              .0:00
              .0108
              .0124
              .0124
              .0106
              .0092
              .0081
                       .0038
                                                                    REPRODUCIBILITY OF THE
```

ORIGINAL PAGE IS POOR

.0073

.0064

.0046

.0035

.0003

.450

.500

.550

.600

.650

.0042

.0035

```
PAGE
                               TABULATED SOURCE DATA - LACR N2-28 (1H19)
DATE 03 NOV 75
                                                                                                               (R0EB03)
                                          1H19 B22C7F5M4V7H111 T8 ORBITER LOWER FUSELAGE
                           HAH/HT( 3) = 1.000
ALPHA ( 1) = -10.000
                                              DEPENDENT VARIABLE HYHREF
 SECTION ( 1)80DY
Y(BP)
             .0000117.0000
  X/L
.700
             .00.4
                      .0015
    .750
             .0009
    .800
             .0005
                      .0008
    .850 ******
    .900
             .0000
                      .0006
    .950
   1.000
             .0001
                      .0005
   1.640
             .0003
                                                                                                              2959.5
                                                                                                                                     .51000-01
ALPHA ( 2) = -5.000
                           HAW/HT( 1) =
                                               DEPENDENT VARIABLE HYHREF
 SECTION ( 1)BODY
Y(BP)
             .0000117.0000
  X/L
     .025
              .0402
     .050
.075
             .0219
     .100
              .0114
     . 125
              .0100
     .150
.175
.200
.250
              .0118
              .0113
              .0098
              .0080
              .0059
     .350
                      1200.
     .400
                      .0033
     450
              .0046
     .500
.550
.600
                      .0027
              .0026
              .0014
                       .0013
     .650
                       .0010
     750
     .800
                       .0003
```

.850 ****** .900 44444

.950 ******* 1.000 *******

.0002

1.040

.0002

```
PAGE
                                 TABULATED SOURCE DATA - LACK NE-28 (IHIS)
DATE 03 NOV 75
                                                                                                                     (RDEB03)
                                            IN19 BE2C7F5M4Y7W111 TB ORBITER LOWER FUSELAGE
                                                                                                                                            .51000-01
                                                                                                                                HO
                                                                                           4022.3
                                                                                                        ΤØ
                                                                                                                   2959.6
                            * (S )TH\HAH
                                                       RN/L
                                                              38200
ALPHA ( 2) #
                 -5.000
 SECTION ( 1)BODY
                                                 DEPENDENT VARIABLE HYHREF
YIBPI
              .0000117.0000
  X/L
     .025
              .0373
     .050
              £050.
     .075
.100
.125
              .0140
              .0106
              .0093
     .150
              .0097
     .200
.250
.250
.300
              .0110
              .0105
              .0091
              .0075
                       .0029
              .0054
     .400
              .0050
                       1200.
     .450
.500 **
              .0043
              .....
                       .0026
     .550
              .0025
     .600
              .0013
                       .0012
     .650 ******
               .0002
                        e000.
     .700
     .750 ******
     .800 0******
                        £000.
     .850 444444
     .900 *******
                        .0002
     .950 ******
    1.000 *******
                        -0011
    1.040
               .0002
                                                                                                                                            .51000-01
                                                                                                                   2959.6
                                                                                                                                HO
                                                                                            4022.3
 ALPHA ( 2) = -5.000
                             HAH/HT( 3) #
                                                  DEPENDENT VARIABLE H/HREF
  SECTION 1 11BODY
 YTBP1
               .0000117.0000
   X/L
               .0326
      .025
.050
.075
.100
.125
.150
.250
.250
.350
.400
               .0179
               .0085
.0085
               .0085
               .0096
Seco.
```

.0090 .0066

.0044

```
DATE 03 NOV 75
                              TABULATED SOURCE DATA - LACE NE-28 (IHIS)
                                                                                                                          PAGE
                                                                                                                                   5
                                         THIS BEECFFSM4Y7WIII TO ORBITER LOWER FUSELAGE
ALPHA ( 2) * -5.000
                          HAH/HT( 3) =
                                           1.000
 SECTION ( 1)80DY
                                             DEPENDENT VARIABLE HARRES
Y(BP)
             .0000117.0000
  X/L
    450
             .0037
    .500
                     .0022
         ***
    .550
             -0022
    .800
             .00t2
                     .0011
    .650
    -700
             .0001
                     .0000
    .750 ******
    .800 #FR48###
                     .0002
    .850 ******
    .900 ******
                     .0002
    .950 PRESSE
   1.000 4444
                     .0010
   1.040
             -0005
ALPHA ( 3) =
                  .000
                          HAH/HT( I) *
                                                  RN/L
                                                              .36500
                                                                         20
                                                                                               TO
                                                                                                         3039.5
                                                                                                                                .51000-01
SECTION ( 1)BODY
                                            DEPENDENT VARIABLE H/HREF
Y(BP)
            .0000117.0000
    .025
            0411
            .0160
    .075
            .0094
    .100
            .0051
    .125
.150
            .0073
            .0099
    .175
            .0105
    .200
.250
.300
.350
            20102
            .0063
```

.0013 原发电电电电

+0008 0000

黄黄龙谷老长

.0001

.0004

.400

.450 .500

.550 .600

.650 .700

.750

.800

.850 .900

.950

1.000

.0036

.0036

.0027

.0001

.0009

.0008

.0005

```
DATE 03 NOV 75
```

TABULATED SOURCE DATA - LACE NZ-28 (1H19)

PAGE

THIS BEECFFSMAYTHILL TO ORBITER LOHER FUSELAGE

(ROEBO3)

ALPHA (3) a .000 HAN/HTC 1) = .850

SECTION (11800Y

DEPENDENT VARIABLE HYHREF

Y(B#) .0000117.0000

X/L 1.040 *******

ALPHA (3) × .000 HAW/HT(2) 9

SECTION (1180DY DEPENDENT VARIABLE HYHREF

YIEP .0000117.0000

X/L

.0383 .0149 .0067 .0057 .0068 .0092

.0098

.0095 .0076

.0059 .0059 .0048 .0030

.0035

***** .0025

.0007 .0001

2000.

.700 0444444 .0008 .750 .0001

.800 escesses .0005 .850 6294000

.0005

.950 ##464464 1.000 .0004 10001

1.040 ******

```
DATE 03 NOV 75
                             TABULATED SOURCE DATA - LACR N2-28 (IH19)
                                                                                                                              PAGE
                                          THIS BEECTFSM4V7W111 TB ORBITER LOWER FUSELAGE
                                                                                                              (ROE803)
ALPHA ( 3) = .000
                          HAH/HT( 3) = 1.000 RN/L = .36500
                                                                                   = 4065.2
                                                                                                  TO
                                                                                                          = 3039.6
                                                                                                                                # .51000-D1
 SECTION ( 11800Y
                                              DEPENDENT VARIABLE HITHEF
Y(BP)
             .0000117.0000
  X/L
     .025
    .050
.075
             .0131
             .0077
    . 100
             .0050
    .125
             .0050
             .0081
    .175
.200
.250
.300
             .0066
             .0057
             .0052
             .0042
                      .0031
             .0027
.0010
    .400
                      .0029
    .450
    500 °
            电影报告报报
                      .0022
             .0006
    .500
             .0002
                      10001
    .650
             .0000
    .700 424444
                      .0007
    .750 .0001
                      .0004
    .850 40004466
    900 ******
                      .0004
    .950 *******
   1.000
             .0003
                     .0001
   1.040 ensesses
ALPHA ( 4) = 5.000
                          HAH/HAH
                                                    RN/L = .36200
                                                                                     4029.4
                                                                                                            3039.6
                                                                                                                               = .51000-01
 SECTION ( 1180DY
                                              DEPENDENT VARIABLE H/HREF
Y(BP)
             .0000117.0000
  X/L
    .025
             .0275
    .050
.075
             .0082
             .0041
    .100
             .0055
    .125
.150
.175
.200
             .0061
             .0054
.0057
.0050
             .0037
    .300
             .3023
    .350
.400
             .0012
                     .0033
             .0016
                     .0031
```

DATE 03 NOV 75 TABULATED SOURCE DATA - LACE N2-28 (IH19) PAGE THIS BEECTF5M4V7HIII TB ORBITER LOWER FUSELAGE (RQEB03) ALPHA (4) = 5.000 HAH/HT(1) × .850 SECTION (11BODY DEFENDENT VARIABLE H/HREF Y(BP) .0000117.0000 X/L .450 eseees .500 ****** .0014 .550 .0000 .500 #0+0+0+ .0007 .653 ****** .700 .0002 .0007 .753 ****** .800 atatese .0006 .850 4444644 .908 ****** .0008 .950 ****** 1.000 .0001 .0008 1.040 .0001 ALPHA (4) = 5.000 # (S 17HVNAH - .51009-01 RN/L # 4029.4 **= 3039.8** SECTION (1180DY DEPENDENT VARIABLE HIHREF YIBPI .0000117.0000 X/L .025 .0257 .050 .075 .0077 .0038 . 100 .0051 . 125 . 150 .0057 .0059

.175 0053 .200 .250 .300 .350 .0046 .0022 .0011 .0030 .400 .0010 .0029 .450 eeeeee 500 550 .0013 .0000 .600 ****** .0007 .650 (****** .700 .0002 .0007 .750 ****** .800 ****** .0005 .850 ****** 9080008 .950 ****** 1.000 .0001 .0007

--

DATE 03 NOV 75 TABULATED SOURCE DATA - LACE NO-ES (1H19) 1H19 82207F5N4V7W111 TS ORBITER LOWER FUSELAGE ALPHA (4) = (RCEB03) 5.000 HAH/HT(2) = .900 SECTION (11800Y DEPENDENT VARIABLE HAHREF Y(BP) -0000117.0000 X/L 1.040 .0001 ALPHA (4) # 5.000 HAH/HT(3) = 1.000 RN/L = .36200 SECTION (1)BODY 3039.6 DEPENDENT VARIABLE HYHREF Y(ap) .0000117.0000 X/L .025 .0226 7800 .050 .075 .0033 .100 .0045 .0050 . 125 . 150 . 175 .0052 .0047 .250 .350 .357 .0041 .0024 .0019 .0027 .400 .0008 .450 ******* .0025 .00!1 .550 .0000 .500 ******

.0008

.0006

.0005

.0007

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.650 ******

.750 ****** .800 +eersees

.850 ****** .900 ******

.0001

.0001

.0001

.700

1.000

1.040

PAGE

.51000-D1

```
DATE 03 NOV 75
                                   TABULATED SOURCE DATA - LACE N2-28 (IH19)
                                                                                                                                               PAGE
                                                                                                                                                      10
                                                THIS BESCOFFSMANTHILL TO ORBITER LOWER FUSELAGE
                                                                                                                             (RQE803)
 ALPHA ( 5) =
                  10.000
                               HAHVHT(1) = .
                                                    .850 RW/L = .36900
                                                                                                  4027.6
                                                                                                                TO
                                                                                                                           3009.6
                                                                                                                                         HO
                                                                                                                                                     .51000-01
  SECTION ( 1)BODY
                                                     DEPENDENT VARIABLE HYHREF
 Y(BP)
               .0000117.0000
   X/L
      .025
               .0119
      .050
               .0050
     .075
               . บัญรี4
               .0033
     . 150
. 150
. 150
. 250
. 350
. 350
. 400
               .0022
               .0004
.0004
.0005
.0003
.0000
                         .DOIB
                         .0014
     .450
                         .0009
     .550
     .600
           ******
                         .0002
     .550
.700
.750
               .0000
                         10004
               .0001
     .800
               .0001
                         .0002
     .850
     .900
.950
               .0000
                         .0008
    1.000
               .0002
                         .0004
    1.040
               .0003
ALPHA ( 5) = 10.000
                              HAH/HT( 2) #
                                                                       .36900
                                                                                                                          3009.6
                                                                                                                                                    .51000-01
 SECTION ( 1180DY
                                                    DEPENDENT VARIABLE HIHREF
Y(BP)
               .0000117,0000
  X/L
    .025
.050
.075
               .0111
              .0047
              .0031
.0027
.0021
.0020
.0013
.0004
     .100
```

. 150 . 150 . 175 . 200 . 250 . 300 . 300

.0002

.0000

.0017

.0013

が寄せる性が

```
DATE 03 NOV 75
                               TABULATED SOURCE DATA - LACE N2-28 (1H19)
                                                                                                                              PAGE 11
                                          IH19 822C7FSM4V7W111 TB ORBITER LOWER FUSELAGE
                                                                                                              (RQEB03)
ALPHA ( 5) = 10.000
                           = (S )TH/WAH
                                             .900
 SECTION ( 1)BODY
                                              DEPENDENT VARIABLE HIHREF
Y(BP)
             .0000117.0000
  X/L
     .450
    .500
                      .0008
    .600
                      .0002
    .650
    .700
             .0000
                     .0004
             .0001
    .800
             1000.
                     .0001
    .850
             .0000
                     .0007
    ,950
   1.000
             .0002
                     .0004
   1.040
             .0003
ALPHA ( 5) # 10.000
                          HAH/HT( 3) *
                                                                                                                                ■ .51900-01
 SECTION ( 1)BODY
                                              DEPENDENT VARIABLE HITHREF
Y(BP)
            .0000117.0000
  X/L
            .0097
    .050
             .0041
    .075
             .0028
    .100
             .0027
             .0023
    .150
.175
             .0019
            .0018
    .200
.250
             .0011
             .0003
             .0004
            .0000.
    .350
                     .0015
                     .0011
    .450
    .500
                     .0007
    .550
    .600
                     .0002
    .650
.700
```

.0001

.0001

.0000

.0001

.750

.800

.850 .900

.950 1.000

.0003

.0001

.0006

DATE 03 NOV 75

TABULATED SOURCE DATA - LACR N2-28 (1H19)

THIS BESCOFFSHOVTWILL THE CREITER LOWER FUSELAGE

PAGE

(RQE803)

ALPHA (5) = 10.000

HAH/HT(3) "

1.000

SECTION (1180DY

DEPENDENT VARIABLE HAMREF

Y(BP)

.0000117.0000

X/L 1.040 .0002



SREF



DATE D3 NOV 75

TABULATED SOURCE DATA - LACR N2-28 (1H19)

IH19 B22C7F5M4V7W111 T8 ORBITER LOWER FUSELAGE

13 (RQE804) (03 NOV 75)

PAGE

REFERENCE DATA PARAMETRIC DATA 2690.0000 SQ.FT. XMRP .0000

LREF = 1290.3000 IN. BETA YMRP .0000 .000 RN/L .500 1290.3000 IN. ZMRP BLTRIP = .030 DELTAH = .0000 SCALE * . 175 .0060 MACH 19.800

ALPHA (1) = -10.000HAW/HT(I) = .850 RN/L .37900 3992.5 TO 2959.6 Ю .51000-01

SECTION (1180DY DEPENDENT VARIABLE H/HREF

Y(BP) .0000117.0000

X/L .025 .0533 .050 .0232 .075 .0159 .100 0127 . 125 .0102 . 150 .0119 .175 .0165 .200 .0177 .0159 .300 .0135 .350 .0126 .0049 .400 .0113 .0057 .450 .0101 .500 .0055 .550 .0071 .600 .0053 .0044 .650 .0010 .700 .0018 .0027 .750 .0013 .800 .0006 .0019 .850 ****** .9000009 .950 .0001 1.000 .0002******

ALPHA (1) = -10.000 HAH/HAH RN/L .37900 3992.5 TO 2959.6 HO SECTION (1180DY .51000-0i

DEPENDENT VARIABLE H/HREF

Y(BP) .0000117.0000

.0004

X/L

1.040

.025 .0495 .050 .0216

.075 .0148

.100 .0118

. 125 .0095 TABULATED SOURCE DATA - LACR N2-28 (1H19)

DEPENDENT VARIABLE H/HREF

HAH/HIT(2) =

THIS BESCOFFMENTHILL TO ORBITER LOWER FUSELAGE

PAGE

(RQEBO4)

14

.51000-01

HO

2959.6

REPRODUCIBILITY OF THE ORIGINAL PAGE IS POOR

DATE 03 NOV 75

Y(BP)

ALPHA (1) = -10.000

.0000117.0000

SECTION (1)80DY





PASE 15

```
DATE 03 NOV 75 TABULATED SOURCE DATA - LACR N2-28 (1H19)
```

1H19 B22C7F5M4V7W111 TB ORBITER LOWER FUSELAGE

(RQEBO4)

ALPHA (1) = -10.000 HAW/HT(3) = 1.000

SECTION (1)BODY DEPENDENT VARIABLE H/HREF

Y(BP) .0000117.0000

X/L
.700 .0015 .0022

APHA (2) = -5.000 HAM/HT(1) = .850 RN/L = .38000 PO = 4032.9 TO = 2989.6 HO = .51000-01

SECTION (1)BODY DEPENDENT VARIABLE H/HREF

Y(8P) .0000117.0000

X/L .025 .0430 .050 .0176 .075 .0129 .100 .0096 .125 .150 .175 .200 .250 .0079 .0093 .0118 .0131 .0113 .0095 .0084 .350 .0041 .400 .0041 .450 .0054 .500 .550 .0036 .0028 .600 .0025 .0019 .350 .700 .0009 .0005 .0013 .750 .8003 .0005 .0005 .800 .850 .900 .0003 .0004 .950 1.000 ******* .0403 1.040 .0000

```
PAGE
                                                                                                                                        16
                               TABULATED SOURCE DATA - LACR NE-28 (IHI9)
DATE 03 NOV 75
                                                                                                                (RQE804)
                                           THIS BEECTF5M4V7WIII TO ORBITER LOWER FUSELAGE
                                                                                                                                   £ .51000-01
                                                                                     = 4032.9
                                                                                                               2969.6
                                                                                                                           HO
                                                     RN/L
                                                                             PO
                                                                                                    TO
                -5.000
                           = (S )TH\WAH
                                                             ≖ .30000
ALPHA (2) =
                                               DEPENDENT VARIABLE HIHREF
 SECTION ( 1180DY
Y(BP)
             .0000117.0000
  X/L
     .025
             .0400
     .050
             .015
             .017.0
     .100
              .0030
     . 125
. 150
. 175
             .0073
             .0087
              .0110
     .290
.250
              .0122
              .0106
              .0098
                      .0038
     .350
              .0079
                      .0039
     .400
              .0063
     .450
              . 0050
     .500
              ....
                      .0033
     .550
              .0026
     .600
                      .0024
              .0017
     .650
.700
              .0000
              .0004
                      .0012
     .750
              .0003
     .800
              .0004
                       .0004
     .850
     .900
              .0003
                       .0004
     .950
    1.000 ******
                       .0002
    1.040
              .0000
                                                                                                                                       .51000-01
                                                                                                                           HO
                                                                                                    TO
                                                                                                               2989.6
                                                                                        4032.9
ALPHA ( 2) = -5.000
                            HAW/HT(3) =
                                             1.000 RN/L
                                                              38000
                                                DEPENDENT VARIABLE H/HREF
 SECTION ( 1180DY
 YCBPI
              .0000117.0000
   X/L
              .0351
.0144
     .025
     .050
              .0105
     .075
     .100
     .125
              .0054
     .150
.175
              .0076
              .0096
     .200
.250
.300
              .0107
              .0093
              .0077
     .350
.400
                       .0033
```

.0069 .0055

.450 .0044 .500 ****** .0029 .550 .0023 .600 .0015 .0021 .650 .0007 .700 .0004 .0011 .750 0003 .0004 .0004 .800 .850 .900 .0002 .0003 1.000 ****** .0002 .0000 1.040

ALPHA (3) - .000 HAW/HT(1) = .850 RN/L = .36000 PO = 4013.6 TO = 3039.6 HO = .51000-01

SECTION (1)BODY DEPENDENT VARIABLE H/HREF

Y(BP) .0000117.0000 X/L .025 .0332 .050 .0148 .0085 .075 .100 .0064 .125 .0057 .0072 . 150 .175 .0082 .200 .0084 .250 .300 .0067 .004B .350 .0033 .0033 .400 .0022 .0032 .450 .0011 .500 ** .0020 .550 .0004 .0010 .600550 ******

.0002

.0001

.0002

.800 ******

.850 ******

.700 .750

.950

1.000

.0005

.0006

.0007

.0001

```
DATE 03 NOV 75
```

TABULATED SOURCE DATA - LACR N2-28 (1H19)

PAGE 18

THIS BESC7F5M4V7WITT TO ORBITER LOWER FUSELAGE

(RQEBO4)

ALPHA (3) = HAH/HT(1) a

SECTION (1)BODY

DEPENDENT VARIABLE HYHREF

Y(BP) .0000117.0000

X/L 1.040 *******

ALPHA (3) = .000 # (S)TH\HAH 4013.6 3039.6 .51000-01

SECTION (1)BODY DEPENDENT VARIABLE HYHREF

Y(BP) .0000117.0000

X/L

.0309

.0063 .0045 .0031 .0020 .0030

.0030

.0019

.0009

.650 "********** .700 .0001 .750 .0001 .0001 .0004

.800 ******* .0006 .850 *******

.900 ******* .0007 .950 ******

1.000 .0002 1000.

1.040 ******

```
PAGE
                                                                                                                                                   19
                                  TABULATED SOURCE DATA - LACE NE-28 (1H19)
DATE 03 NOV 75
                                                                                                                         (ROESO4)
                                              IH19 B22C7F5M4V7W111 TB ORBITER LONER FUSELAGE
                                                                                                                                                .51000-01
                                                                                                                       3039.6
                                                                                           = 4013.6
                             HAM/HTt 33 =
                                                                 a .36000
ALPHA ( 3) ×
                    .000
                                                1.000
                                                         RH/L
                                                   DEPENDENT VARIABLE HARREF
 SECTION ( 1180DY
Y(BP)
              .0000117.0000
 X/L
.025
              .0271
     .050
              .0121
     .075
               .0070
     100
165
150
175
200
250
350
               .0052
               .0055
               .0059
              .0067
.0069
.0055
               .0027
                        .0027
               .0018
                        350d.
     .450
               .0009
     500
                        .0017
     .550
.600
               .0003
                        .0008
     .550
.700
               .0001
                        .00004
     .750
               .0001
     .800
                        .0005
      .850
     900
                        3000.
     .950
    1.000
               .0002
                         .0001
    1.040
                                                                                                                                                 .51000-01
ALPHA ( 4) =
                   5.000
                              HAH/HT( 1) *
                                                   DEPENDENT VARIABLE HIHREF
 SECTION ( 11800Y
YCEPI
               .0000117.0000
   X/L
     .025
               .0235
               .0101
     .075
.100
.125
.150
.175
.250
.350
               .0059
               .0051
               .0054
               .0054
.0050
.0047
               9200.
```

.2006

.400

.0026

```
DATE DE NOV 75
                                  TABULATED SOURCE DATA - LACE NE-ES (THIS)
                                              THIS BESCTF SHOVTHILL TB ORBITER LOWER FUSELAGE
                                                                                                                        (RQEBO4)
ALPHA ( 4) =
                   5.000
                             HAH/HT( 1) =
                                                  .850
 SECTION : LIBODY
                                                  DEPENDENT VARIABLE HIREF
Y(DP)
              .6000117.0000
  X/L
     .450 decesse
     .500 *****
                        .0017
     .550
.600
              .0000
              .0000
                        .0006
     .650 .0009
.700
                        .0005
     .750
              .0000
     .800 444444
                       .0006
     .850 ******
     .900
.950
              .0002
                       .0009
              .0004
   1.000
                       .0005
   1.040
              -0003
ALPHA ( 4) =
                  5.000
                            = (S ) TH/HAH
                                                        RN/L
                                                                                 PO
                                                                                             4020.6
                                                                                                                      2969.6
SECTION ( 1)BODY
                                                  DEPENDENT VARIABLE HARREF
Y(BP)
              .0000117.0000
  X/L
    .025
.050
.075
             .0218
.0094
.0050
    .100
.125
.150
.175
.200
.250
.350
.400
             .0048
              .0050
             .0050
             .0047
             .0044
8200.
              .0008
                       .0024
             .0005
                       .0025
    .450
.500
          ......
          20000000
                       .0016
    .550
.600
.650
             .0000
             .0000
                       .0006
             .0008
                       .0004
```

.750 .0000

.850

.900

.350

1.000

.0000

.0002

.0004

.0002

.0005

.J009

.0004

PAGE

HO

20

· .51000-01

DATE 03 NOV 75

TABULATED SOURCE DATA - LACE N2-28 (IHIS) .

PAGE

THIS BESCOFFMYONITE TO CREITER LOWER FUSELAGE

TROEBOW1

(S) TH\WAH .900 5.000 ALPHA (4) =

DEPENDENT VARIABLE H/HREF SECTION (LIBODY

Y(BP) .0000117.0000

X/L

1.040 .0003

.51000-01 = 2969.8 1.000 5.000 HAM/HT(3) = ALIHA (4) *

DEPENDENT VARIABLE HYHREF SECTION (1)BODY

.0000117.0000 YEPI

X/L .025 .050 .075

.0082

.0044 S400

.0044

.0044

.0039

.100 .125 .150 .175 .200 .250 .350 .400 .0023

.0015 .0021 SS00. .0005

.500 .550 .600 .650 .700 .0014

0000 .0005

.0006 .0004

.0000 .0005 .800

850

.900 .950 .0008 .0001 .0003

1.000 .0001 .0004

```
55
                                                                                                                               PAGE
                               TABULATED SOURCE DATA - LACE NE-78 (1H19)
DATE 03 NOV 75
                                                                                                               (ROEBO4)
                                          THIS BEECTFSMAV7HIII TO ORBITER LONER FUSELAGE
                                                                                                                                     .51000-01
                                                                                                                          HO
                                                                                                           a 2989.6
                                                                                    = 3967.9
                                                                                                   TO
                                                                            PO
                                              .850 RN/L × .36500
                           HAWAHTI 1) =
              10.000
ALPHA ( 5) *
                                               DEPENDENT VARIABLE HYHREF
 SECTION ( 1)BODY
             .0000117.0000
Y(BP)
  X/L
     .025
.050
.075
.100
.125
.150
.175
.200
.250
.350
              .0100
              .0045
              .0032
              .0024
              .0023
              .0015
              .0014
              8000.
              .0007
                       .0012
              .0002
                       $100.
     .400 *******
          *****
     .450
     .500
              .0001
                       .0007
     .550
.600
.650
              .0000+44*44*
           ******
                       .0000
      700
              .0002
      750 ******
      .800 ******
                       .0002
      .850
                       .0006
               .0001
      .900
      .950
           44475444
     1.000 ******
                        .0003
               .0003
     1.040
                                                                                                                                   # .51000-01
                                                                                                                           HO
                                                                                                              2989,6
                                                                                        3967.9
                                                                  .36900
                                                                              PD
                                                       RN/L
 ALPHA ( 5) = 10.000
                            # (S 17H\HAH
                                                DEPENDENT VARIABLE HYHREF
  SECTION ( 1)BODY
               .0000117.0000
  YIGPI
    X/L
      .025
.050
.075
               .0093
               5200.
               .0030
      .0022
               .0021
```

.0014 .0013 .0008 .0007 .0002

.0002

44564644

.0011

```
TABULATED SOURCE DATA - LACR N2-28 (1H19)
DATE 03 NOV 75
                                                                                                        (ROEBO4)
                                       THIS BEECTFEMANTHILL TB ORBITER LOWER FUSELAGE
ALPHA ( 5) = 10.000
                         # (S )TH\W\H
                                           .900
                                           DEPENDENT VARIABLE H/HREF
 SECTION ( 1180DY
YTEPI
            .0000117.0000
  X/L
    .450 *****
    .500
            .0001
                    .0007
    .550 ******
    .600
            .0000------
    .650 *******.
.700 .0001
                    .0000
    .750 ******
    .800 ******
                     .0002
    .950 ******
            .0001
                    .0005
    .900
    .950 ******
   1.000 ******
                     .0003
            .0003
   1.040
                                                                                 3967.9
                                                                                             TO
                                                                                                       2989.6
                                                         = .36900
                         HAN/HT( 3) =
ALPHA ( 5) = 10.000
                                            DEPENDENT VARIABLE HYHREF
 SECTION 1 11800Y
             .0000117.0000
Y(BP)
  X/L
     .025
             .0082
             .0037
```

.050 .075 .100 .0026 .0020 .125 .150 .175 .0019 .0013 .0011 .200 .0006 .350 .0002 .0016 .0001 .40D ******* .0010 450 ***** .0001 .0006 .500 .5500000****** .600 .650 .700 .0001 .0000 .750 ****** .800 ****** .0002 .850 ****** .900 .0001 .0005 .950 ****** 1.000 ****** .0002 PAGE 23

.51000-01

DATE 03 NOV 75

TABULATED SOURCE DATA - LACR N2-28 (IHI9)

THIS 822C7F5M4V7WIII TB ORBITER LOWER FUSELAGE

(ROEBOW)

1.000 ALPHA (5) * 10.000 HAH/HT(3) *

SECTION (1180DY

DEPENDENT VARIABLE HYHREF

Y(BP)

.0000117.0000

X/L 1.040 .0002



PAGE

DATE 03 NOV 75	TABULATED SOURCE DATA - LACR N2-28 (1H19)
----------------	---

THIS BESC7F5M4V7WIII ORBITER LOWER FUSELAGE (RQEBO5) (03 NOV 75)

REFERENCE DATA						PARAMETRIC DATA						
SREF : LREF : BREF : SCALE :	*	2690.0000 SQ.FT 1290.3000 IN. 1290.3000 IN. .0060		च्य दा 188	.0000 .0000 .0000		BETA BLTRIF	#) #	.000 .000	RIA/L MACH	**	.500 008.81

ALPHA (1) = -10.000 HAH/HT(1) = .850 RN/L = .38000 PO = 4008.3 TO = 2959.6 HO = .51000-01

SECTION (1)BODY DEPENDENT VARIABLE H/HREF

```
.0000117.0000
Y(BP)
    X/L
         .025
.057
.075
                            .0333
.0124
.0077
                            .0058
.0045
.0021
.0028
.0027
         .125
.150
.175
.200
.250
.350
.350
.400
.450
.550
.600
.700
.750
                            .0019
.0013
.0014
.0011
.0047
                                                .001B
                                               .0017
                                                .0017
                                                .0011
                             .0013
                                                .0010
                              .0012
                                                .0007
           .850
                              .0010
                                                .0009
        .950
1.000
1.040
                             .0012
.0005
.0008
                                                .0003
```

ALPHA (1) = -10.000 HAW/HT(2) = .900 RN/L = .38000 PO = 4008.3 TO = 2959.6 HO = .51000-01

SECTION (1) BODY DEPENDENT VARIABLE H/HREF

Y(BP) .0000117.0000

X/L .025 .9309 .050 .0115 .075 .0072 .100 .0054 .125 .0042

```
PAGE
                                 TABULATED SOURCE DATA - LACR NZ-ZB (1H19)
DATE 03 NOV 75
                                                                                                                       (ROEBOS)
                                                                          ORBITER LOWER FUSELAGE
                                             IH19 B22C7F5M4V7W111
                             # (S ) TH\WAH
                                                 .900
ALPHA ( 1) = -10.000
                                                  DEPENDENT VARIABLE HIHREF
 SECTION ( 1)BODY
              .0000117.8000
Y(BP)
  X/L
     . 150
               .0020
     .175
               .0025
     .250
.350
.350
.400
               .0025
               .0018
               1100.
                        .0017
                        .0015
               .0013
      .450
               .0010
                        .0016
      .500
               .0042
     .550
               .0015
                        .0010
               .0013
      .650
.700
               .0012
                        .0009
      750
               .0010
      .800
.850
               .0011
                        .0006
               .....
                        .0009
      .900
               .0009
      .950
               .0011
                        .0003
    1.000
               .0004
    1.040
               .0007
                                                                                              4008.3
                                                 1.000
 ALPHA ( 1) = -10.000
                              HAW/HT( 3) =
                                                   DEPENDENT VARIABLE H/HREF
  SECTION ( 1)BODY
               .0000117.0000
 Y(BP)
   X/L
      ົ.ດຂຣ
                .027!
      .050
                .0161
                .0063
      .075
.100
.125
.150
.175
.200
.250
.350
                .004B
```

.450 .500 .550

.600

.650 ******

.0036 .0017 .0022 .0022 .0015 .0009

.0010 .0011

.0009

.0013

.0015

.0014

.0014

.0009

28

.51000-01

PAGE

.51000-01

```
DATE 03 NOV 75
                                TABULATED SOURCE DATA - LACE N2-28 (IH19)
                                            IH19 822C7F5M4V7H111
                                                                        ORBITER LOWER FUSELAGE
                                                                                                                   (ROEBOS)
ALPHA (1) = -10.000
                            HAW/HT(3) =
                                              1.000
 SECTION ( 1)BODY
                                                DEPENDENT VARIABLE H/HREF
Y(BP)
              .0000117.0000
  X/L
.700
              .0011
                       .0008
     .750
              .0008
    .800
.850 •
                       .0006
              .0010
     .900
              .0008
                      .0008
             .0009
   .950
1.000
                       .0002
   1.040
ALPHA ( 2) = -5.000
                            #AH/HT( 1) =
 SECTION ( 1)BODY
                                                DEPENDENT VARIABLE HYHREF
Y(BP)
             .0000117.0000
  X/L
              .0364
    .050
.075
.100
              .0142
              .0098
              .0075
     .125
              .0056
    .175
.200
.250
.300
.350
.400
              .0036
              .0032
              .0028
              .0021
              .0022
                       .0031
              .0016
                       .0028
     .500
                       .0029
```

.550

.650 .700 .750 .800

.850

.900

.950 1.000 1.040 .0017

.0009

.0014

.0006

.0005 .0005 .0017

.0015

.0013

.0013

```
58
                                                                                                                                PAGE
                               TABULATED SOURCE DATA - LACR N2-28 (1H19)
DATE 03 NOV 75
                                                                      ORBITER LOW"R FUSELAGE
                                                                                                                (ROEBOS)
                                           IH19 B22C7F5h4V7W111
                                                                                                               2959.6
                                                                                                                                   × .51000°01
                -5.000
                           ≈ (S )TH\WAH
                                               .500
                                                     RM/L = .38000
                                                                             P٥
                                                                                     4004.8
ALPHA (2) =
                                               DEPENDENT VARIABLE HYHREF
 SECTION ( 1)BODY
Y(BP)
             .0000117.0000
  X/L
    .025
             .6339
     .050
             .0132
    .075
.100
.125
             .0091
             .0070
             .0033
     .175
             .0034
    .200
.250
.300
             .0029
             .0026
             .0019
             .0021
             .0015
     .400
                      .0026
     .450
    .500
.550
.600
            .....
                      .0027
             .0016
             .0014
                      .0016
          ******
     .650
             .0008
     .700
                      .0019
     .750
             .0013
                      .0012
     .800
             .0013
     .850
                      .0012
     .900
             .0005
     .950
             .0011
                      .0003
   1.000
             .0005
    1.040
             .0004
                                                                                                                                     .51000-0'
                                                                                        4004.8
                                                                                                    TO
                                                                                                            2959.6
                                                                                                                           HO
ALPHA ( 2) = -5.000
                           HAM/HT(3) =
                                             1.000
                                                     RN/L
                                                                .38000
 SECTION ( 1)BODY
                                               DEPENDENT VARIABLE HYHREF
Y(BP)
             .0000117.0000
  X/L
     .025
             .0297
     .075
              .0000
     .100
             .0061
             .0046
     . 125
             .0029
0200.
     .150
.175
     .200
.250
.300
              .0026
              .0023
              .0017
                      .0025
```

.0013

```
DATE 03 NOV 75
                                TABULATED SOURCE DATA - LACR N2-28 (1H19)
                                                                                                                                   PAGE
                                                                                                                                          29
                                            1H19 B22C7F5M4V7W111
                                                                       ORBITER LONER FUSELAGE
                                                                                                                  (RQE805)
ALPHA ( 2) =
              ~5.000
                           HAN/HT( 3) =
                                            1.000
 SECTION ( 1)BODY
                                             DEPENDENT VARIABLE HIHREF
Y(BP)
             .0000117.0000
  X/L
    .450
              .0010
    .500
.550
                      .0024
              .0014
    .600
              .0012
                      .0014
    .650
.700
.750
              .0007
                      .0013
             .0011
             .0011
                      .0011
    .850 ••
    .900
              .0005
                      .0010
    .950
             .0009
   1.000
              .0005
                      .0002
   1.040
              .0003
ALPHA ( 3) =
                   .000
                           HAM/HT( 1) =
                                                      RN/L
                                                                                                                3039.6
                                                                                                                             HO
                                                                                                                                        .50000-01
 SECTION ( 1)BODY
                                               DEPENDENT VARIABLE HARRES
Y(BP)
             .0000117.0000
  X/L
    .025
             .0429
.0188
    .050
.075
.100
             .0135
             .0101
    .125
             .0077
             .0053
    .175
.200
.250
.300
             .0053
             .0042
             .0041
             .0028
                      .0047
             .0030
    .400
             .0028
                      .0043
    .450
             .0025
```

Control of the Contro

.500 ******

.650

.0005

.0010

.0011

.0020

.0016

.0014

.550

.700

750

.800

.850 .900

.950 1.000 .0044

.0030

.0027

.0020

1500.

.0003

The second secon

```
PAGE
                                 TABULATED SOURCE DATA - LACR N2-28 (1H19)
                                                                                                                        (RQE805)
DATE 03 NOV 75
                                                                           ORBITER LOWER FUSELAGE
                                              1H19 B22C7F5M4V7W111
                                                  .850
                             HAM/HTC 17 "
                     .000
ALPHA ( 3) =
                                                  DEPENDENT VARIABLE HAHREF
 SECTION ( 11800Y
               .0000117.0000
Y(BP)
   X/L
               .0012
    1.040
                                                                       .35800
                              HAH/HT( 2) =
                     .000
 ALPHA ( 3) =
                                                   DEPENDENT VARIABLE HYHREF
  SECTION ( 1180DY
                .8000117.0000
 Y(BP)
    X/L
      .025
.050
.075
.100
.125
.150
.175
.250
.350
.400
                .0399
                .0175
                8210.
4200.
```

.0072 .0050 .0050 .0039 .0039 .0026

.0028 .0026 .0023

.0004

.0009

.0011

.8015 .0013

.0010 .0011

.450 .550 .550 .650 .700 .750

.850 .900 .950

1.000

.0044 0400.

.0041

.0028

.0025

.0019

.0020

.0003

30

.50000-01

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DATE 03 NOV 75
                        TABULATED SOURCE DATA - LACR N2-28 (IH19)
                                                                                                                           PAGE
                                                                                                                                31
                                         IHIS BEECTFSM4V7WILL
                                                                   ORBITER LOWER FUSELAGE
                                                                                                           (RQE805)
ALPHA ( 3) a
                  .000
                          HAW/HT( 3) = 1.000 RM/L = .35800
                                                                                 = 3982.0

≈ 3039.6

                                                                                                                     HO
                                                                                                                             = .50000-01
 SECTION ( 1)BODY
                                             DEPENDENT VARIABLE H/HREF
Y(BP)
            .0000117.0000
 X/L
    .025
             .0351
    .050
            .0154
    .075
            .0110
             .0083
    125
             .0063
    . 150
. 175
             .0044
             .0044
    .200
.250
.300
.350
            .0034
            .0034
            .0023
             .0025
                     .0039
            .0023
                     .0035
    .450
            .0020
    .500
                     .0036
    .550 .0004
                     .0024
    .650 ******
                    .0022
    .700
            .0008
    .750
            .0009
    .850 .0016
            3100
                     .0017
    .900
            .0013
                     .0017
    .950
            .0011
   1.000
            .0008
                     .0003
   1.040
            .0010
ALPHA ( 4) =
                5.000
                         HAW/HT( ) =
                                                   RN/L
                                                         = .36400
                                                                                 = 3975.0
                                                                                                       = 3009.6
                                                                                                                     HO
                                                                                                                             * .51000-CI
SECTION ( 1)BODY
                                            DEPENDENT VARIABLE H/HREF
Y(8P)
            .0000117.0000
 X/L
    .025
            .0497
            .0227
    .050
    .075
            .0166
   .158
.185
            .0131
            .0104
    . 150
. 175
            .0069
            .0067
    .200
.250
.300
            .0074
            .0052
            .0046
    . 350
            .0037
                     .0067
    .400
            .0036
                    .0073
```

```
DATE 03 NOV 75
```

TABULATED SOURCE DATA - LACR N2-28 (IHI9)

```
PAGE
                                                                                                                                           32
                                            THIS 822C7F5M4V7W111
                                                                        ORBITER LOWER FUSELAGE
                                                                                                                  (RQE805)
ALPHA ( 4) =
                  5.000
                            HAH/HT( 1) =
                                               .850
 SECTION ( 1180DY
                                                DEPENDENT VARIABLE HIHREF
Y(BP)
              .0000117.0000
  X/L
    .450
              .0034
     .500
          *****
                      .0054
     .550
              .0026
    .500
              .0026
                      .0057
    .650 ***
.700
.750
.800
             ****
              .0025
                      .0045
             .0023
              .0017
                      .0039
    .850
    .900
             .0022
                      .0031
    .950
              .0019
   1.000
              .0011
                      .0011
   1.040
             .0010
ALPHA ( 4) =
                 5.000
                           HAW/HT( 2) =
                                                      RN/L
                                                              36400
                                                                                                                3009.8
                                                                                                                                        .51000-01
SECTION ( 1)BODY
                                               DEPENDENT VARIABLE H/HREF
Y(BP)
             .0000117.0000
 X/L
    .025
             .0462
    .050
             .0211
             .0154
    .100
             .0122
    .125
             .0097
             .0063
    .175
    .250
.350
.350
.400
             .0069
             .0048
             .0642
             .0034
                      .0062
             .0033
                      .0058
    .450
             .0031
    .500
                      .0060
    .550
             .0024
    .600
             .0024
                      .0053
    .650
.700
             .0023
                      .0042
    .750
.800
             .0022
```

.0016

.0020

.0018

.0010

.850 .900

.950

1.000

.0037

.0029

DATE 03 NOV 75 TABULATED SOURCE DATA - LACR N2-28 (IH19) PAGE 33 IH19 B22C7F5N4V7H111 ORBITER LOWER FUSELAGE (ROEBOS) ALPHA (4) = 5.000 HAW/HT(2) × .900 SECTION (1)BODY DEPENDENT VARIABLE H/HREF Y(BP) .0000117.0000 X/L 1.040 .0009 ALPHA (4) = 5.000 HAH/HT[3] = 1.000 RN/L .51000-01 SECTION (1) BODY DEPENDENT VARIABLE HIHREF Y(89) .0000117.0000 X/L .025 .0404 .050 .0185 .075 .0135 .100 .0107 . 125 . 150 . 175 . 200 . 250 . 300 . 350 .0085 .0055 .0054 .0060 .0042 .0037 .0030

.500 .0018 .0025 .950 1.000 .0016 .0009 .0009 1.040 .0008

.0028

.0021

.0021

.0020

.0019

.0014

.450

.500

.550

.600

.650 .700 .750

.800

.850

.0055 .0059

.0052

.0046

.0037

```
DATE D3 NOV 75
```

TABULATED SOURCE DATA - LACR N2-28 (1H19)

PAGE 34

```
IH19 B22C7F5M4V7W111
                                                                        ORBITER LOWER FUSELAGE
                                                                                                                   (ROE805)
ALPHA ( 5) = 10.000
                            HAM/HT( I) =
                                               .850 RN/L = .38100
                                                                                       m 4011.8
                                                                                                      TΩ
                                                                                                               2959.6
                                                                                                                                      × .51000-01
 SECTION ( 1)BODY
                                                DEPENDENT VARIABLE H/HREF
Y(SP)
             .0000117.0000
  X/L
    .025
             .0634
    .050
.075
             .0304
              .0232
    .100
.125
.150
.175
.200
.250
              .0188
              .0152
              .0091
             .0111
              .0111
             .0009
0800.
    .350
              .0072
                      .0111
    .400
              .0070
                      .0127
    .450
              .0061
    .500
                       .0128
    .550
.600
              .0060
              .0055
                      .0108
    .550
.700
             ----
             .0049
                      .0094
    .750
              .0049
    .800
              .0049
                       .0081
    .850
    .900
              .0038
                       .0066
    .950
              .0033
   1.000
              .0030
                       .0036
   1.040
              .0025
ALPHA ( 5) = 10.000
                            HAH/HT( 2) ≈
                                                                                                                                         .51000-01
                                                                                                                 2959.6
                                                                                         4011.8
 SECTION ( 1)BODY
                                                DEPENDENT VARIABLE HYHREF
Y'SPI
             .0000117.0000
  X/L
    .025
             .0590
    .050
              .0282
    .075
              .0215
    .100
              .0175
              .0141
    .150
              .0085
    .175
.200
.250
              .0104
              .0103
              .0083
              .0074
              .0067
    . 350
                       .0103
    .400
              .0065
                      .0118
```

```
DATE 03 NOV 75
                               TABULATED SOURCE DATA - LACR NZ-88 (IH19)
                                                                                                                                PAGE
                                          IH19 B22C7F5M4V7W111
                                                                      ORBITER LOWER FUSELAGE
                                                                                                                (RGEB05)
ALPHA (5) = 10.000
                           HAW/HT( 2) =
 SECTION ( 1)BODY
                                              DEPENDENT VARIABLE H/HREF
Y(BP)
             .0000117.0000
  X/L
    .450
             .0056
    .500 ******
                      .0119
    .550
             .0056
    .600
             .0051
                      .0100
    .650
    .700
             .0046
                      .0088
    .750
             .0046
    .800
             .0046
                      .0075
    .650
    .900
             .0035
                      .0061
             .0030
    .950
   1.000
                      .0033
   1.040
             .0024
ALPHA (5) = 10.000
                         HAH/HT( 3) =
                                            1.000
                                                                                       4011.8
                                                                                                                                     .51000-01
 SECTION ( 1)BODY
                                              DEPENDENT VARIABLE HYHREF
YIBPI
             .0000117.0000
    .025
             .0517
    .050
             .0248
    .075
             .0189
    .100
.125
.150
             .0154
             .0124
             .0075
    . 175
             .0091
    .200
.250
.300
.350
             .0091
             .0073
             .0065
             .0059
                      .0091
                      .0104
    .450
             .0049
                      .0105
    .550
.600
.650
             .0049
             .0045
                      .0088
    .700
             .0040
                      .0077
    .750
             .0040
```

.950 .900

.950

1.000

.0040

.0031

.0027

.0025

.0066

.0054

DATE 03 NOV 75

TABULATED SOURCE DATA - LACR N2-28 (IH19)

ORBITER LOHER FUSELAGE 1H19 B22C7F5M4V7W111

(ROEBOS)

HAH/HT(3) # 1.000 ALPHA (5) = 10.000

SECTION (1)BODY

DEPENDENT VARIABLE HIHREF

Y(BP)

.0000117.0000

X/L 1.040 .0021

PAGE 36

```
DATE 03 NOV 75
                              TABULATED SOURCE DATA - LACE N2-28 (IH19)
                                                                                                                            PAGE 37
                                          1H19 B22C7F5MWY7W111
                                                                    ORBITER LOHER FUSELAGE
                                                                                                             (ROEBOS)
                                                                                                                       ( D3 NOV 75 )
               REFERENCE DATA
                                                                                                        PARAMETRIC DATA
SREF = 2690.0000 SQ.FT.
                              SEMX
                                            .0000
                                                                                              BETA
LREF =
                                                                                                             .000
                                                                                                                    RN/L
                                                                                                                                   .500
         1290.3000 IN.
                              YMRP
                                            .0000
                                                                                              BLTRIP =
                                                                                                             .000
                                                                                                                    HACH
                                                                                                                                 19.800
BREF =
         1290.3000 IN.
                              ZMRP
                                            .0000
SCALE -
              .0060
ALPHA ( 1) = -10.000
                          HAW/HT( 1) ≃
                                             .850
                                                    RN/L
                                                              .36500
                                                                                    4010.1
                                                                                                 TO
                                                                                                           3019.6
                                                                                                                       HO
                                                                                                                                  .51000-01
 SECTION ( 1)BODY
                                             DEPENDENT VARIABLE HYHREF
Y(82)
             .0000117.0000
  X/L
     .025
             .0331
     .050
             .0113
    .075
             .0076
    .100
             .0052
    .125
             .0044
    .150
             .0038
    .175
.200
.250
             .0034
             .0033
             .0017
             .0016
    .350
.400
             .0019
                     .0023
             .0013
                     .0021
    .450
             .0013
    .500
             .0027
                     .0013
    .550
             .0014
    .600
             .0009
                     .0011
    .650
.700
             .0061
             .0010
                     .0013
    .750
             .0009
    .800
             .0011
                     .0011
    .850
            .....
    .900
             .0007
                     .0007
    .950
             .0006
   1.000
             .0006
                     .0000
   1.040
             .0005
ALPHA ( 1) = -10.000
                          m (S )TH\WAH
                                                   RN/L
                                                                          PO
                                                              .36500
                                                                                 × 4010.1
                                                                                                TO
                                                                                                        = 3019.6
                                                                                                                      HÖ
                                                                                                                                 .51000-01
 SECTION ( 1)BODY
                                             DEPENDENT VARIABLE HYHREF
Y(BP)
            .0000117.0000
  X/L
    .025
             .0307
    .050
             .0105
    .075
             .0070
    .100
             .0049
```

```
TABULATED SOURCE DATA - LACR N2-28 (1H19)
DATE 03 NOV 75
                                                                                                                       (ROEBOS)
                                                                          ORBITER LOKER FUSELAGE
                                              IH19 B22C7F5M4V7W111
                                                 .900
                             # (S ) THYWAH
ALPHA ( 1) = -10.000
                                                  DEPENDENT VARIABLE H/HREF
 SECTION ( 1)BODY
              .0000117.0000
Y(BP)
  X/L
     .150
.175
.200
.250
.300
              .0036
               .0031
              .0016
              .0015
               .0018
     .400
.450
.500
.550
                        .0020
               .0012
              .0012
                        .0012
               .0013
                        .0010
               .0009
     .650
.700
               .0054
                        .0012
               .0010
      .750
               .0008
      .800
.850
.900
               .0011
                        .0010
               . . . . . .
                        .0007
               .0007
      .950
                .0006
                        .0000
     1.000
                .0005
                .0005
     1.040
                                                                                                                      3019.5
                                                                                              4010.1
                              HAW/HT( 3) #
 ALPHA ( 1) = -10.000
                                                   DEPENDENT VARIABLE HYHREF
  SECTION ( 11BODY
                .0000117.0000
 Y(BP)
    X/L
       .025
                .0259
                .0092
       .050
                .0062
       .100
                .0043
       .125
                .0036
                .0031
       .175
                .0028
                .0027
       .200
       .250
.300
.350
                .0014
```

.0016

.0010 .0010

.0020

.0011

.0007 .0045

.400

.450

.500

.550

.600 .650

.0019

.0017

.0011

.0009

PAGE

.5:000-01

```
DATE 03 NOV 75
                                 TABULATED SOURCE DATA - LACR N2-28 (1H19)
                                                                                                                                        PAGE
                                             1H19 B22C7F5M5Y7W111
                                                                          ORBITER LONER FUSELAGE
                                                                                                                       (RQEBOB)
ALPHA (1) = -10.000
                             HAN/HT(3) =
 SECTION ( 1)BODY
                                                  DEPENDENT VARIABLE H/HREF
YIBPI
              .0000117.0000
 X/L
.700
75r
              .0008
                       .0011
    .750
.800
              .0007
                       .0009
     .850
     .900
              .0006
                       .0006
   956
1.000
              .0005
                       .0000
   1.040
              .0004
ALPHA ( 2) = -5.000
                             HAW/HT( 1) =
                                                                                             3999.3
                                                                                                                     3019.€
                                                                                                                                  HO
                                                                                                                                              .51000-01
 SECTION ( 1)BODY
                                                  DEPENDENT VARIABLE HYHREF
Y(BP)
              .0000117.0000
  X/L
    .025
.050
              .0377
              .0146
     .075
              .0:02
                                                           EMBODICIBILITY
     .100
                                                        ORIGINAL PAGE
              .0071
    .125
.150
              .0059
              .0044
     .175
              .0040
     .200
.250
.300
.350
              .0037
              .0030
              .0020
              .0019
                       .0026
     .400
                       .0026
     450
500
              .0016
                       .0024
     .550
              .0011
     .600
              .0014
                       .0022
                                                          い
     .650
             .....
                                                             OF THE
                                                          POOR
     .700
              .0012
                       .0015
     .750
              .0007
    .800
.850
              .0011
                       .0013
              .0001
     .900
                       .0011
   .950
1.000
              .0001
                       .0003
   1.040
              .0004
```

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PAGE
                                                                                                                                          40
                                TABULATED SOURCE DATA - LACR N2-28 (1H19)
DATE 03 NOV 75
                                                                                                                  (ROEBOS)
                                                                       ORBITER LOWER FUSELAGE
                                          . THIS B22C7F5M4V7H111
                                                                                                                                     = .51000-01
                                                                                                                             HO
                                                                                                              = 3019.6
                                                                                      3999.5
                                               .900 RN/L
                                                              ■ .36400
                           HAW/HT( 2) *
ALPHA (2) = -5,000
                                               DEPENDENT VARIABLE HYHREF
 SECTION ( 1)80DY
             .0000117.0000
Y(82)
  X/L
    .025
.050
.075
             .0351
             .0135
              .0095
             .0055
     .100
    .125
.150
.175
.200
.250
.350
             .0041
              .0034
              .0028
              .0019
              .0018
                      .0024
             .0015
                      .0024
     .450
              .0014
     .500
            ***
                       .0022
              .0011
     .550
              .0013
                       .0020
     .600
     .650
    .700
.750
              .0012
                      .0014
              .0007
     .800
              .0010
                       .0012
     .850
              .0001
    .900
              .0008
                      1100.
                       .0003
   1.000
              .0006
   1.040
              .0003
                                                                                                                                        .51000-01
                                                                                                                 3019.6
                                                                                          3999.5
ALPHA ( 2) = -5.000
                            HAW/HT(3) =
                                                DEPENDENT VARIABLE H/HREF
 SECTION ( 1)BODY
Y(BP)
              .0000117.0000
  X/L
              .0307
     .025
     .050
              .9083
     .100
              .0059
     .125
.150
.175
              .0048
              .0032
     .200
.250
              .0030
              .0024
     .300
              .0016
     .350
              .0016
                       .0021
```

ing the conference of the property of the control o

()

.400

.0013

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DATE 03 NOV 75
                               TABULATED SOURCE DATA - LACR N2-28 (1H19)
                                                                                                                              PAGE 41
                                          1H19 B22C7F5M4V7H111
                                                                     ORBITER LONER FUSELAGE
                                                                                                              (ROEBOS)
ALPHA ( 2) = -5.000
                        HAM/HT(3) = 1.000
 SECTION ( 1)BODY
                                              DEPENDENT VARIABLE HIHREF
Y(BP)
            .8000117.0008
  X/L
    .450
             .0013
    .500
          *****
                     .0020
    .550
             .0009
    .600
                     .0018
             .0012
    .650
.700
             .0010
                     .0012
    .750
             .0006
    .800
.850
             .0009
                     .0011
             .0001
    .900
             .0007
                     .0009
    .950
             .0001
   1.000
             .0005
                     .0002
   1.040
             .0003
ALPHA ( 3) *
                  .000
                          HAW/HT(1) =
                                                                                                                                   .50000-01
                                                                                                          3039.6
 SECTION ( 1)BODY
                                              DEPENDENT VARIABLE HYHREF
Y(BP)
            .0000117.0000
  X/L
    .025
             .0408
    .050
             .0181
    .075
             .0124
    .100
             .0092
             .0075
    . 150
             .0064
    .175
             .0054
    .200
.250
             .0047
             .0034
    .300
             .0030
    .350
            .0027
.0025
                     .0044
                     .00%1
    .450
.500
             .0023
            .0031
                     .0040
    .550
.600
.650
             .0021
                     .0031
             .0071
             .0014
                     .0023
    .750
             .0011
    .800
                     .0020
             .0002
    .850
             .0001
    .900
                      .0020
    .950
```

.0010

```
DATE 03 NOV 75
                                   TABULATED SOURCE DATA - LACR N2-28 (1H19)
                                                IH19 B22C7F5M%V7W111
                                                                             ORBITER LOWER FUSELAGE
ALPHA ( 3) =
                     .000
                              HAW/HT( !) *
                                                    .850
 SECTION ( 1)800Y
                                                    DEPENDENT VARIABLE HIHREF
Y(BP)
               .0000117.0000
  X/L
   1.040
               .0004
ALPHA ( 3) =
                     .000
                              HAM/HT( 2) *
                                                           RN/L
                                                                   35600 ≤
                                                                                                3966.2
SECTION ( 1)BODY
                                                                                                              TO
                                                   DEPENDENT VARIABLE HYHREF
Y(BP)
              .0000117.0000
  X/L
    .025
              .0380
    .050
.075
.100
              .0115
              .0085
              .0070
    .150
             .0059
.0051
.0044
   .175
.200
.250
.350
              .0032
             .0028
.0025
.0023
.0021
                       .0041
                       .0038
   .450
.500
.550
.600
.700
.750
                       .0037
             .0018
                       .0029
```

.0019

.0019

.0002

.0011

.0002

1000.

.0010

.0003

.800

.850

.950 1.000

1.040

PAGE

(RQEBOS)

3039.6

HO

42

.500000-01



```
DATE 03 NOV 75
                                 TABULATED SOURCE DATA - LACE N2-28 (1H19)
                                                                                                                                    PAGE
                                                                                                                                           43
                                            IHI9 B22C7F5M4V7W111
                                                                        ORBITER LOWER FUSELAGE
                                                                                                                   (RQEBOS)
 ALPHA ( 3) =
                    .000
                             HAM/HT( 3) =
                                              1.000
                                                       RN/L
                                                              * .35600
                                                                                          3986.2
                                                                                                               = 3039.6
                                                                                                                              HO
                                                                                                                                         .50000-01
  SECTION ( 1)BODY
                                                DEPENDENT VARIABLE HIHREF
 Y(B2)
              .0000117.0000
   X/L
     .025
              .0333
     .050
              .0149
              .0101
     .100
     .125
              .0061
              .0052
     .175
              .0045
     .200
              .0038
     .250
.300
.350
              .0028
              .0025
              .0022
                       .0036
     .400
              .0020
                       .0033
     .450
.500
              .0019
              .0023
                       .0033
     .550
              .0016
     .600
              .0017
                       .0025
     -650
              .0052
     .700
              .0011
                       .0019
     750
             .0009
     .800
             .0002
                       .0017
     .850
     .900 ******
                      .0016
     .950
          ******
   1.000
             .0008
                       .0002
             .0003
ALPHA ( 4) m
                  5.000
                           HAH/HT(1) =
                                                                  .39500
                                                                                         4018.8
                                                                                                      TO
                                                                                                                 8909.6
                                                                                                                                         .52000-01
SECTION ( 1180DY
                                               DEPENDENT VARIABLE HYHREF
Y(BP)
             .0000117.0000
  XZL
    .025
             .0505
.0224
    .050
.075
.100
             .0164
             .0132
    .125
             .0107
    .150
             .0085
             .007B
    .200
.250
.300
            .0056
.0056
    .350
             .0045
                      .0071
    .400
             .0037
                      .0075
```

```
DATE 03 NOV 75
```

TABULATED SOURCE DATA - LACR NE-28 (1H19)

PAGE

```
THIS 82207F5M4V7H111
                                                                      ORBITER LONER FUSELAGE
                                                                                                                 (RQEBOS)
ALPHA ( 4) =
                  5.000
                           HAM/HT( 1) =
                                               .850
 SECTION ( 1180DY
                                               DEPENDENT VARIABLE HYHREF
Y(BP)
             .0000117.0000
  X/L
    .450
             .0038
    .500
                      .0077
          4444444
    .550
             .0029
    .606
             .0032
                      .0056
    .650
            644466
    .700
             .0022
                      .0044
    .750
             .0023
    .800
             .0029
                      .0040
             9100.
    .850
    .900
                      .0033
    .950
             .0015
   1.000
             .0016
                      .0022
   1.040
             .0017
ALPHA ( 4) =
                 5.000
                           HAW/HT( 2) =
                                                      RN/L
                                                                             PO
                                                                                       4018.8
                                                                                                               2909.6
                                                                                                                                      10-000:57.
 SECTION ( 1)BODY
                                               DEPENDENT VARIABLE HIHREF
Y(BP)
             .0000117.0000
 X/L
    .025
.050
             .0469
             .0208
    .075
            $$10.
ee00.
    .100
    .125
    . 150
    .175
             .0072
             .0060
    .250
.300
.350
             .0046
             .0042
                      .0066
    .1+00
                      .0070
    .450
             .0035
            ****
                      .0072
    .550
             .0027
             .0030
                      .0052
    .650
            .....
    .700
             .0021
                      .0041
    .750
             .0027
    .800
```

.850

.900

.950 1.000

.0037

.0031

.0020

.0000

.0014 .0014

DATE 03 NOV 75 TABULATED SOURCE DATA - LACE N2-28 (1H19) PAGE 1H19 822C7F5M4V7W111 ORBITER LOWER FUSELAGE (ROEBOS) ALPHA (4) = 5.000 HAH/HT(2) -.900 SECTION (1)BODY DEPENDENT VARIABLE H/HREF Y(8P) .0000117.0000 X/L 1.040 .0016 ALPHA (4) m 5.000 HAH/HT(3) = 1.000 RN. L .39500 **4018.8** TO 2909.6 SECTION (1180DY .52000-01 DEPENDENT VARIABLE HIHREF Y(BP) .0000117.0000 X/L .025 .0410 .050 .0192 .0134 .100 .0107 . 125 .0087 .150 .0070 .0063 0052 .200 .250 .300 .3045 .0041

.0015 .950 1.900 .0013 .0018 1.040 .0014

.0030

.0031

.0024 .0026

.0019

.0024

.0000

.700 .0018 .0018

.400

.450 .500 .550

.750

.800 .850

.900

.0058

.0061

.0063

.0045

.0036

.0032

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PAGE
                                                                                                                                                  48
                                  TABULATED SOURCE DATA - LACR N2-28 (IH19)
DATE 03 NOV 75
                                                                                                                        (ROBBOB)
                                                                           ORBITER LOWER FUSELAGE
                                              IH19 B22C7F5M4V7W111
                                                                                                                                                .51000~81
                                                                                                                       2959.6
                                                                                                                                    HO
                                                                                           = 4005.5
ALPHA ( 5) =
               10.000
                             HAH/HT( I) =
                                                  .850 RN/L
                                                                - .38000
 SECTION ( 1180DY
                                                  DEPENDENT VARIABLE H/HREF
Y(89)
              .0000117.0GG0
  X/L
     .025
              .0617
     .050
              .0296
    .075
              .0226
              .0184
     . 125
. 150
. 175
              .0153
              .0128
              .oiiz
     .200
.250
.300
.350
              .0105
              .0094
              .0076
.0075
.0071
                        .0111
                        .0124
     .450
.500
              .0068
                        .0129
     .550
.600
              .0066
                        .0104
     .650
.700
               .0077
              .0055
.0054
.0048
                        .0089
     .750
.800
                        .0078
     .850
               .0002
                        .0069
     .90)
               .0038
     .950
               .0034
    1.000
               .0026
                        .0043
    1.040
               .0025
                                                                                                                                                 .51000-01
                                                                                             4006.5
ALPHA ( 5) * 10.000
                             HAW/HT( 2) ≈
                                                                      .38000
 SECTION ( 1)BODY
                                                   DEPENDENT VARIABLE HYHREF
Y(BP)
               .0000117.0000
  X/L
     .025
     ,050
               .0275
     .075
              .0210
     .125
.150
.175
.200
.250
               .0142
               .0119
               .0104
               .0097
               .0087
               .0071
     .350
               .0070
                        .0103
               .0066
                        .0116
```

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DATE 03 NOV 75
                                   TABULATED SOURCE DATA - LACR NZ-28 (IH19)
                                                                                                                                            PAGE
                                               1H19 B22C7F5M4V7W111
                                                                            ORBITER LOWER FUSELAGE
                                                                                                                          (ROEBOS)
ALPHA ( 5) * 10.000
                              HVM/HT(2) =
                                                   .900
 SECTION ( 1)BODY
                                                   DEPENDENT VARIABLE HIHREF
Y(8P)
               .0000117.0000
   X/L
     .450
               .0063
     .500
                        .0120
     .550
.600
.650
.700
.750
              .0062
.0053
.0069
                        .0097
                        .0083
               .0050
               .0002
                        .0072
     .850
.900
.950
               .0036
                        .0064
               .0032
   1.000
              .0024
                        .0040
   1.040
ALPHA ( 5) = 10.000
                           HAH/HT( 3) =
                                                1.000
                                                         RN/L
                                                                                           ≈ 4006.5
 SECTION ( 1180DY
                                                                                                                                                .51000-0:
                                                   DEPENDENT VARIABLE HYHREF
Y(BP)
              .0000117.0000
  X/L
     .025
              .0503
     .050
              .0242
     .075
              .0185
     .100
              .0150
    . 125
              .0125
    . 150
. 175
              .0104
              .0092
    .200
.250
.300
              .0085
              .0077
              .0062
.0061
.0058
.0055
                       .0091
    .400
                       -0101
    .450
    .500
.550
.600
                       .0106
              .0054
                       .0085
    .550
.700
.750
              .0056
             .0045
                       .0072
             .0039
                       .0063
    .850
   .900
.950
             .0031
                       .0056
             .0028
  1.000
             1500.
                      .0035
```

DATE 03 NOV 75

TABULATED SOURCE DATA - LACR N2-28 (IH19)

(ROEBOS)

.THIS BEECTF5#4V7HILL

ORBITER LOWER FUSELAGE

ALPHA (5) = 10.000 HAW/HT(3) = 1.000

SECTION (1)BODY

DEPENDENT VARIABLE HYHREF

Y(BP)

.0000117.0000

X/L 1.040 .0020



PAGE

DATE 03 NOV 75

TABULATED SOURCE DATA - LACR N2-28 (IH19)

THIS BESC7F5MHV7HIII TB ORBITER FUSELAGE CHINE (RGECO3) (03 NOV 75)

	•	HIS OCCOR SIN	TIMEL IS CHELL						
REFERENCE	DATA						PARAMETRI	C DATA	
SREF = 2690.0000 SQ.F1 LREF = 1290.3000 IN. BREF = 1290.3000 IN. SCALE = .0060	T. XMRP = YMRP = ZMRP =	.0000 .0000 .0000				BETA = BLTRIP = MACH =	.000 .000 19.800	RN/L = DELTAH =	.500 .175
ALPHA (1) = -10.000	HAH/HT(I) =	.850 RN/L	. = .36800	P0 =	4011.8	TO	= 3009.6	. но -	.51000-01
SECTION (1) CHINE		DEPENDENT	VARIABLE H/HREF						
ANGLE 30.0000									
.100 •••••• .150 .0152 .200 .088									m. 000 01
ALPHA (1) = -10.000	m (S)TH\WAH	.900 RN/L	. = .36800	PO =	4011.B	TO	⇔ 3009.6	5 H0 1	: .51000-CI
SECTION (1) CHINE		DEPENDENT	VARIABLE H/HREF						
ANGLE 30.0000									
X/C .150 .0142 .200 .0082									
ALPHA (1) = -10.000	HAW/HT(3) =	1.000 RN/L	. = .35800	PO **	4011.8	TO	= 3009.6	6 НО	10-0001
SECTION (1)CHINE		DEPENDENT	VARIABLE H/HREF						
ANGLE 30.0800									
X/C .100 ******* .150 .0124 .200 .0072									
ALPHA (2) = -5.000	HAW/HT(1) =	.850 RN/L	39200	PO =	4022.3	TO	= 2959.1	6 HO	.51000-01
SECTION (1) CHINE		DEPENDENT	VARIABLE H/HREF						
ANGLE 30.0000						•			
X/C .100 ******* .150 .0129 .200 .0071									

DATE 03 NOV 75	TABULATED SOURCE DATA - LACR N2-28 (IH19)	PAGE 50
	THIS BESC7F5M4V7H111 TB ORBITER FUSELAGE CHINE (RQEC03)	
ALPHA (2) × -5.000	HAW/HT(2) = 900 RN/L = .38200 PO = 4022.3 TO = 2959.5 HO	51000-01
SECTION (1) CHINE	DEPENDENT VARIABLE H/HREF	
ANGLE 30.0000		
X/C .100 ****** .150 .0120 .200 .0066		
ALPHA (2) = -5.000	HAH/HT(3) = 1.000 RN/L = .39200 PO = 4022.3 TO = 2959.6 HO	= . 51000-01
SECTION (I)CHINE	DEPENDENT VARIABLE H/HREF	•
ANGLE 30.0000		
.100 ******* .150 .0106 .200 .0058		
ALPHA (3) = .000	HAW/HT(1) = .850 RN/L = .36500 PO = 4066.2 TO = 3039.6 HO	.= .51000-01
SECTION (1) CHINE	DEPENDENT VARIABLE H/HREF	
ANGLE 30.0000		
X/C .100 ******* .150 .0119 .200 .0056		
ALPHA (3) = .000	OH 8.620E = OT 5.880# = O7 0086. = 1/NR 008. = (5)TH/WAH	= .51000-01
SECTION (1) CHINE	DEPENDENT VARIABLE H/HREF	
ANGLE 30.0000		
X/C .100 ******* .150 .0110 .200 .0054		

DATE 03 NOV 75	TABULATED SOURCE DATA - LACR N2-28 (1H19)		
ALPHA (3) = .000 SECTION (1)CHINE ANGLE 30.000	IH19 822C7F5M4V7WIII TO ORBITER FUSELAGE CHINE HAW/HT(3) = 1.000 RN/L = .36500 PO = 4066.2 TO DEPENDENT VARIABLE H/HREF	(ROECO3) = 3039.6 HO	PAGE 71 = .51000-01
X/C .100 ******* .150 .0097 .200 .0048 ALPHA (4) = 5.000 SECTION (1)CHINE ANGLE 30.0000 X/C .100 ****** .150 .0086	HAW/HT(1) = .850 RN/L = .36200 PO = 4029.4 TO DEPENDENT VARIABLE H/HREF	≈ 3039.8 HO	* .51000-61
ALPHA (4) = 5.000 SECTION (1) CHINE ANGLE 30.0000	HAM/HT(2) = .900 RN/L = .36200 PO = 4029.4 TO DEPENDENT VARIABLE H/HREF	≈ 3039.6 HO	≈ .51000-01
X/C .100 ***********************************	HAW/HT(3) = 1.000 RN/L = .36200 PO = 4029.4 TO DEPENDENT VARIABLE H/HREF	≈ 3039.6 HO	≈ .51000-01

DATE 03 NOV 75	TABULATED SOURCE DATA - LACR NZ-Z8 (1H19)	PAGE 52
	IH19 822C7F5M4V7H111 T8 ORBITER FUSELAGE CHINE (RQEC03)	
ALPHA (5) = 10.000	HAW/HT(1) = .850 FM/L = .36900 PO = 4027.6 TO = 3009.6 HO	= "51000-01
SECTION (1) CHINE	DEPENDENT VARIABLE H/HREF	
ANGLE 30.0000		
X/C .100 ******* .150 .0054 .200 .0026		
ALPHA (5) = 10.000	HAW/HT(2) = .900 RN/L = .36900 PO = 4027.6 TO = 3009.6 HO	= .51000-01
SECTION (11CHINE	DEPENDENT VARIABLE H/HREF	
ANGLE 30.0000		
X/C .100 ******* .150 .0050 .200 .0024		
ALPHA (5) = 10.000	HAW/HT(3) = 1.000 RN/L = .36900 PO = 4027.6 TO = 3009.6 HO	 51000-01
SECTION (1) CHINE	DEPENDENT VARIABLE H/HREF	
ANGLE 30.0000		
X/C .100 ******* .150 .0044 .200 .0021		

DATE 03 NOV 75	TABUL ATED	SOURCE DATA - LACR N2-28 (IHI	(9)				
ø		THIS BESCHFOMAVANIII TO ORBI	700 0000			P/	\GE 53
REFEREN	CE DATA	The order	TER FUSELAGE CHINE		(RQECO	4) (O3 A	10V 75)
SREF = 2690.0000 SQ	.FT. XMRP ≈	8380			PARAMETRIC		
BREF = 1290.3000 IN	· YMRP =	. 0000 . 0000		BETA =	.000		
SCALE	· ZMRP =	.0000		BLTRIP =	.030	RN/L =	.500 .175
ALPHA (1) = -10.000	HAH/HT(1) =	()The same		TIAGR =	19.800		7
SECTION (1) CHINE		.850 RN/L = .37900	PO = 3992.5	TO	= 2959.6		_
ANGLE 30.0000		DEPENDENT VARIABLE H/HREF				r10 · 1	10-0001
X/C .100 ******* .150 .0136 .200 .0079							
ALPHA (1) = -10.000	HANAHT(2) =						
SECTION (1) CHINE	respectate C1 as	.900 RN/L ≃ .37900	PO = 3992.5	TO	· 2959.6	HO =	
ANGLE 30.0000		DEPENDENT VARIABLE HYHREF					.51000-01
X/C -100 ******* -150 .0127 -200 .0073		·					
ALPHA (1) = -10.000	HAW/HT(3) =						
SECTION (1) CHINE	**************************************		PO = 3992.5	70 m	2959.6	• OH	
ANGLE 30.0000		DEPENDENT VARIABLE HYHREF					.5!000-01
X/C .100 ******* .150 .0111 .200 .0064			•				
ALPHA (2) = -5.000	HAW/HT(1) a	950	•				
SECTION (1) CHINE	•••		°0 = 4032.9	TO =	2989.6		
ANGLE 30.0000		DEPENDENT VARIABLE HYHREF	•	Í		H0 =	.51000-01
X/C .100 ******* .150 .0128 .200 .0065			. •				

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DATE 03 NOV 75	TABULATED SOURCE DATA - LACR NZ-28 (IHIS)	PAGE 54
	IH19 822C7F5M4V7N111 T8 ORBITER FUSELAGE CHINE (RQECO4)	
ALPHA (2) = ~5.000	HABYHT(2) = .900 RN/L = .38000 PO = 4032.9 TO = 2969.6	HO = .51000-01
SECTION (1)CHING	DEPENDENT VARIABLE HIHREF	
ANGLE 30.000°		•
X/C .100 ****** .150 .0119 .200 .0061		·
ALPHA (2) = -5.000	HAW/HN 3) = 1.000 RN/L = ,38000 PO = 4032.9 TO = 2969.6	HO = .51000-01
SECTION (1) CHINE	DEPENDENT VARIABLE H/HREF	
ANGLE 30.0000		
X/C .100 ******* .150 .0105 .200 .0054		
ALPHA (3) * .000	0.000 = .350 RN/L = .36000 PO = 4013.6 TO = 3039.6	HO = .51000-01
SECTION (I) CHINE	DEPENDENT VARIABLE H/HREF	
ANGLE 30.0000		
X/C .100 ******* .150 .0107 .200 .0053		
ALPHA (3) = .000	HAWAHT(2) = .300 RN/L = .36000 PO = 4013.6 TO = 3039.6	HO = .51000-G1
SECTION (1) CHINE	DEPENDENT VARIABLE H/HREF	
ANGLE 30.0000		
X/C .100 ******* .150 .0099 .200 .0049		

DATE 03 NOV 75	TABULATED SOURCE DATA - LACR N2-28 (IH19)	PAGE 55
	IH19 B22C7F5M4V7W111 TB ORBITER FUSELAGE CHINE (RGECO4)	
ALPHA (3) = .000	HAW/HT(3) = 1.000 RN/L = .36000 PO = 4013.6 TO = 3039.6 HO	= .51000-01
SECTION (1) CHINE	DEPENDENT VARIABLE H/HREF	
ANGLE 30.0000		
X/C .100 ******* .150 .0087 .200 .0043		
ALPHA (4° = 5.000	HAW/HT(1) = .850 RN/L = .37900 PO = 4020.5 TO = 2969.6 HO	= .51000-01
SECTION (1) CHINE	DEPENDENT VARIABLE HARREF	= .51000-01
ANGLE 30.0000		
X/C .100 ******* .150 .0088 .200 .0040		
ALPHA (4) = 5.000	HAW/HT(2) = .900 RN/L = .37900 PO = 4020.5 TO ≈ 2969.6 HO	= .51000-0t
SECTION (1) CHINE	DEPENDENT VARIABLE H/HREF	751555 51
ANGLE 30.0000		
.100 .0082 .150 .0082 .200 .0038		
ALPHA (4) = 5.000	HAW/HT(3) = 1.000 RN/L = .37900 PO = 4020.6 TO = 2969.6 HO	= .51000-01
SECTION (1) CHINE	DEPENDENT VARIABLE H/HREF	
ANGLE 30.0000		
X/C .100 ******* .150 .0072 .200 .0033		

DATE 03 NOV 75	TABULATED SOURCE DATA - LACR N2-28 (IH19)	age 56
	IHI9 BESC7F5M4V7WIII TB ORBITER FUSELAGE CHINE (RQECQ4)	
ALPHA (5) = 10.000	HAW/HT(1) = .850 RN/L = .36900 PO = 3967.9 TO = 2989.6 HO	10-00012. •
SECTION (1) CHINE	DEPENDENT VARIABLE H/HREF	
ANGLE 30.0000		
X/C .100 ******* .150 .0047 .200 .0019		
ALPHA (5) = 10.000	HAW/HT(2) = .900 RN/L = .36900 PO = 3967.9 TO = 2989.5 HO	= .51000-01
SECTION (1) CHINE	DEPENDENT VARIABLE H/HREF	
ANGLE 30.0000		
X/C .100 ******* .150 .094 .200 .0018		
ALPHA (5) = 10.000	HAW/HT(3) = 1.000 RN/L = .36900 ' PO = 3987.9 TO = 2889.8 HO	= .51000-01
SECTION (I) CHINE	DEPENDENT VARIABLE H/HREF	1,1111
ANGLE 30.0000	·	
X/C .100 ******* .150 .0039 .200 .0016		

DATE 03 NOV 75	INDULATE	D SOURCE (MIN - L	ACIE NE-	.CO / IMI	31							17	IGE 57
		1419 828	C7F5M4V	7W111	ORBI	TER FU	JSELAG	E CHINE			(RQEC	(5)	03 1	10V 75)
REFERENCE 1	DATA									P	ARAMETRIC	DATA		
SREF = 2690.0000 SQ.FT .REF = 1290.3000 IN. BREF = 1290.3000 IN. BCALE = .0060	· XMRP = YMRP = ZMRP =	.0000 .0000 .0000							BETA BLTRIP =		.000	RN/L MACH	## ##	.500 19.800
ALPHA (1) = -10.000	HAW/HT(1) *	.850	RN/L	* .3	8000	PÖ		4008.3	то	12	2959.5	но		× .51000-0
SECTION (I)CHINE		OEPE	NDENT V	RIABLE	H/HREF									
ANGLE 30.0000													•	
X/C .100 •••••• .150 .0094 .200 .0035														
ALPHA (1) = -10.000	HAH/HT(2) =	.900	RN/L	sa .3	9000	PÖ	IS.	4008.3	то	#	2959.6	НО		= .51000-0
SECTION (1) CHINE		DEPE	NDENT VA	ARIABLE	HZHREF	•								•
ANGLE 30.0000														
X/C .160 ******* .150 .0087 .200 .0032											,			,
ALPHA (1) = -10.000	HAH/HT(3) *	1.000	RN/L	= .3	8000	PO	124	4008.3	то	*	2959.6	НО		× .51000-0
SECTION (1) CHINE		DEPE	NOENT VA	RIABLE	H/HREF	•								
ANGLE 30.0000														
X/C .100 ******* .150 .0076 .200 .0028							-							
ALPHA (2) = -5.000	HAWAHT(1) =	.850	RN/L	= .3	8000	PO	22	4004.8	то	=	2959.6	. но		× .51000-0
SECTION (1) CHINE		DEPE	NDENT V	VRIABLE	H/HREF									
ANGLE 30.0000									•					

.100 ****** .150 .0098 .200 .0047

DATE 03 NOV 75	TABULATED SOURCE DATA - LACR NZ-ZB (IHI9)	PAGE 58
	THIS B22C7F5M4V7HIII ORBITER FUSELAGE CHINE (RQEC05)	
ALPHA : 21 # -5.000	HAWAHT(2) = .000 RN/L = .38000 PO = 4004.8 TO = 2959.6 HO	= .51000-0 1
SECTION (1) CHINE	DEPENDENT VARIABLE HIHREF	
ANGLE 30.0000		
X/C .100 ******* .150 .0091 .200 .0044		, .
ALPHA (2) = -5.000	OH 8.8255 = OT 8.4004 @ OO 085. = 1/08 000.1 = (E)THYKAH	≖ . 51000-01
SECTION (1) CHINE	DEPENDENT VARIABLE MYHREF	•
ANGLE 30.0000	·	
X/C .100 ******* .150 .0080 .200 .0039		
ALPHA (3)000	HAWAHT(1) = .850 RN/L = .35800 PO = 3982.0 TO = 3039.5 HO	± .50000-01
SECTION (1) CHINE	DEPENDENT VARIABLE H/HREF	
ANGLE 30.0000		
X/C .100 ******* .155 .0142 .200 .6063		
ALPHA (3) = .000	HAW/HT(2) = .900 RN/L = .35800 PO = 3982.0 TO = 3039.6 40	10-00002. =
SECTION (DICHINE	DEPENDENT VARIABLE H/HREF	
ANGLE 30.0000		
X/C .190 ******* .150 .0133 .200 .0058		

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DATE 03 NOV 75	TABULATED SOURCE DATA - LACR N2-2B ([H19]	PAGE 59
	IH19 B22C7F5M4V7W111 ORBITER FUSELAGE CHINE (RQEC05)	•
ALPHA (3) # .000	HAW/HT(3) = 1.000 RN/L = .35800 PO = 3982.0 TO = 3039.6 HO	:0-0000c. *
SECTION (1) CHINE	DEPENDENT VARIABLE H/HREF	
ANGLE '30.0000		
X/C .1CO ******* .150 .0117 .200 .0051		
ALPHA (4) = 5.000	HAW/HT(1) = .850 RN/L = .36480 PO = 3975.0 TO = 3009.6 HO	* .51000-01
SECTION (1) CHINE	DEPENDENT VARIABLE H/HREF	
ANGLE 30.0000		
X/C .100 ******* .150 .0170 .200 .0085		
ALPHA (4) = 5.000	HAW/HT(2) = .900 RN/L = .35400 PO = 3975.0 TO = 3009.6 HO	= .51000-01
SECTION (1) CHINE	DEPENDENT VARIABLE H/HREF	
ANGLE 30.0000		
X/C .100 ******* .150 .0158 .200 .0079		
ALPHA (4) = 5.000	HAW/HT(3) = 1.000 RN/L = .36400 PO = 3975.0 TO = 3009.6 HO	≈ .51000-D1
SECTION (1) CHINE	DEPENDENT VARIABLE H/HREF	
ANGLE 30.0000		
X/C .100 ****** .150 .0138 .200 .0069		

DATE 03 NOV 75	TABULATED SOURCE DATA - LACR N2-28 (1H19)	PAGE 60
	THIS B22C7F5M4V7WITT ORBITER FUSELAGE CHINE (RQECOS)	
ALPHA (5) = 10.000	HAW/HT(1) = .850 RN/L = .38100 PO = 4011.8 TO = 2959.6 HO	= .51000-01
SECTION (1) CHINE	DEPENDENT VARIABLE H/HREF	
ANJLE 30.0000		
X/C .100 ******* .150 .0219 .200 .0141		
ALPHA (5) = 10.000	HAW/HT(2) = .900 RN/L = .39100 PO = 4011.8 TO = 2959.6 HO	= .51000-01
SECTION (1) CHINE	DEPENDENT VARIABLE H/HREF	
ANGLE 30.0000		
X/C .100 ******* .150 .0204 .200 .0131		0.520 01
ALPHA (5) = 10.000	HAW/HT(3) = 1.000 RN/L = .38100 PO = 4011.8 TO = 2959.6 HO	10-00012. =
SECTION (1) CHINE	DEPENDENT VARIABLE H/HREF	
ANGLE 30.0000		
X/C .190 ******* .150 .0179 .200 .0115		

Carry Carry

X/C

.150

.200

.100 ******

.0111

.0044



PAGE 61

DATE 03 NOV 75	TABULATED SOURCE	DATA -	LACK NS-58	(IH19)
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(RQECOB) (03 NOV 75) ORBITER FUSELAGE CHINE IH19 B22C7F5M4V7W111 PARAMETRIC DATA REFERENCE DATA .000 RN/L BETA = .0000 SREF # 2690.0000 SQ.FT. XMRP 19.800 BLTRIP = .000 MACH LREF = 1290.3000 IN. YMRP .0000 BREF = 1290.3000 IN. ZMRP = .0000 .0060 SCALE = = .51000-01 3019.6 .36500 = 4010.1 HAW/HT(1) = RN/L ALPHA (1) = -10.000DEPENDENT VARIABLE H/HREF SECTION (1) CHINE ANGLE 30.0000 X/C .100 ****** 150 .0098 .200 .0037 **.51000-01** = 3019.6 = 4010.1 ALPHA (1) = -10.000 HAW/HT(2) = RN/L DEPENDENT VARIABLE HIHREF SECTION (1) CHINE ANGLE 30.0000 X/C .100 ****** .0082 . 150 .200 . 0034 ■ .51000-01 **3019.6** .36500 m 4010.1 ALPHA (1) = -10.000HAH/HT(3) = DEPENDENT VARIABLE HIHREF SECTION (I) CHINE ANGLE 30.0000 X/F .100 ****** .0072 . 150 .0030 005. .51000-01 **3999.5** 3019.6 HAH/HT(1) # RN/L .36400 ALPHA (2) = -5.000 DEPENDENT VARIABLE H/HREF SECTION (LICHINE ANGLE 30.0000

DATE 03 NOV 75	TABULATED SOURCE DATA - LACR N2-28 (1H19)	PAGE 62
	THIS B22C7F5M4V7WIII ORBITER FUSELAGE CHINE (RQECOB)	
ALPHA (2) * -5.000	HAW/HT(2) = .900 RN/L = .36%00 PO = 3999.5 TO = 3019.6 HO	≈ .51000-01
SECTION (DICHINE	DEPENDENT VARIABLE HYHREF	
ANGLE 30.0000		
X/C .100 ******* .150 .0103 .200 .0041		
ALPHA (2) = -5.000	HAW/HT(3) = 1.000 RN/L = .36400 PO = 3999.5 TO = 3019.6 HO	= .51000-01
SECTION (1) CHINE	DEPENDENT VARIABLE H/HREF	
ANGLE 30.0000		
X/C .100 ******* 150 .0090 .200 .0036	HAHAHT([] = .3560E = 09 0035E. = JVNR 058. = (]) TH\HAH	- .50000-01
	DEPENDENT VARIABLE H/HREF	
SECTION (I) CHINE	DELEMBERAL AND WELL WAS ABOUT UNDER	
X/C .100 ******* .150 .0126 .200 .0061		
ALPHA (3) = .000	HAWAHT(2) = .300 RN/L = .35600 PO = 3956.2 TO = 3039.6 HO	= .50000-01
SECTION (1) CHINE	DEPENDENT VARIABLE HYHREF	
ANGLE 30.0000		
X/C .100 ******* .150 .0117 .200 .0057		

DATE 03 NOV 75	TABULATED SOURCE DATA - LACK N2-28 (1H19)	PAGE 63
	THIS B22C7F5M4V7WIII ORBITER FUSELAGE CHINE (RQECOB)	
ALPHA (3) = .000	HAW/HT(3) = 1.000 RN/L = .35600 PO = 3966.2 TO = 3039.6 HO	.50000-01
SECTION (1) CHINE	DEPENDENT VARIABLE H/HREF	
ANGLE 30.0000		
X/C .100 ****** .150 .0103 .200 .0050		
ALPHA (4) = 5.000	HAWAHT(1) = .850 RN/L * .39500 PO = 4018.8 TO = 2909.6 HO	= .52000-01
SECTION (1) CHINE	DEPENDENT VARIABLE H/HREF	
ANGLE 30.0000		
X/C .100 ******* .150 .0175 .200 .0093		
ALPHA (4) = 5.000	HO = 2909.5 HO = 4018.8 TO = 2909.6 HO	10-0005. =
SECTION (1) CHINE	DEPENDENT VARIABLE HITHEF	
ANGLE 30.0000		
X/C .100 ******* .150 .0163 .200 .0086		
ALPHA (4) = 5.000	OH 8.8005 = 07 8.8104 = 09 00565. = 1/NR 000.1 = (E) TH/WAH	= .52000-01
SECTION (1) CHINE	DEPENDENT VARIABLE H/HREF	
ANGLE 30.0000		
X/C .100 ******* .150 .0143 .200 .0075		

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DATE 03 NOV 75	TABULATED SOURCE DATA - LACR N2-28 (1H19)	PAGE 64
	IH19 B22C7F5M4V7WIII ORBITER FUSELAGE CHINE (RQECO6)	
ALPHA (5) = 10.000	HAW/HT(1) = .850 RN/L = .38000 PO = 4006.5 TO = 2959.6 HO	= .51000-01
SECTION (1) CHINE	DEPENDENT VARIABLE HIHREF	
ANGLE 30.0000		
X/C .100 ****** .150 .028 .200 .0139 ALPHA (5) = 10.000 SECTION (1)CHINE	HAH/HT(2) ≈ .900 RN/L ≈ .38000 PO ≈ 4006.5 TO ≈ 2959.6 HO DEPENDENT VARIABLE H/HREF	= . 51000-01
ANGLE 30.0000		
X/C .100 ******* .150 .0212 .200 .0129	UNDATE 7. 1 000 PM/L = 38000 PO = 4006.5 TO = 2959.6 HO	= .51000-01
ALPHA (5) = 10.000	HAM/HT(3) = 1.000 RN/L = .38000 PO = 4000.5 10	
SECTION (1) CHINE	DEPENDENT VARIABLE H/HREF	
ANGLE 30.0000		
X/C .100 ******* .150 .0186 .200 .0114		

DATE 03 NOV 75

TABULATED SOURCE DATA - LACR N2-28 (1H19)

PAGE 65

IHI9 822C7F5M4V7WIII T8 ORBITER UPPER FUSELAGE

(RQEUD3) (03 NOV 75)

	REFEREN	CE DATA	l .									PA	ARAMETRIC	ATAG		
LREF = 12	90.0000 SQ 90.3000 IN 90.3000 IN		XMRP = YMRP = ZMRP =		. 0000 . 0000 . 0000						BLTRIP	H H	.000 .000 19.800	RN/L = DELTAH =		.500 .175
ALPHA (1)	= -10.000	HAH	VHT(1)	*	.850 R	IN/L =	.36800	P0	<u>≖</u> '4	011.8	то	×	3009.6	HO	=	.51000-01
SECTION (11BODY.				DEPENDE	NT VARIA	BLE H/HR	EF ·						•		
X/L	.1700 .:	3000	.4000	.4250	.5000	.6000	.7000	.8250								
Z(ピン) 375.000 400.00つ 425.000	****		.0093	.0039	.0024	.0001	.0005									
465.000		0051	.0055			.0032		*****								
501.000		0005	.0058		.0066	.0003	.0048									
ALPHA (1)	~ - LU.000	HAH	NHT(2)	=	.900 F	N/L =	.36800	PO	≖ 4	011.8	TO	=	3009.6	HO	=	.51000-01
SECTION (11B0DY				DEPENDE	NT VARIA	BLE H/HRI	EF								
X/L	.1/00 .	3000	.4000	.4250	.5000	.6000	.7000	.8250								
건(씨니) 375.000 400.000	****	***	.0003	.0036	.0023	.0001	.0004									
425.000 465.000		0047	.0051		*******	.0029	.0022	******								
501.000	.0381	0005	.0054		.0061	.0003	.0045									
ALPHA (1)	10.000	HAH	I/HT (3)	*	1.000 F	N/L *	.36800	PO	= 4	011.8	TO	34	3009.6	HO	=	.51000-01
SECTION (1) BODY				DEPENDE	NT VARIA	BLE H/HR	EF								
X/L	.1700	3000	.4000	.4250	.5000	.6000	.7000	.8250								
Z(HL) 375.000 400.000	••••	••••	.0002	.0032	.0020	.0001	.0004									
425.000 425.000	•	0042	.0045		******	.0026	.0019									
501.000	.0332 .	8904	.0047		.0054	.0003	.0040									

			1419 8550	7F5M4V7W11	1 TB ORE	BITER UPF	PER FUSELAGE		(RQEUD3)		
ALFHA (2)	= -5.000 H	AW/HT(1) =	.850	RN/L =	.38200	PO	= 4022.3	TO	= 2959.6	НО	= .51000-01
SECTION (1180DY		DEPEN	DENT VARIA	BLE H/HRE	EF					
X/L	.1700 .3000	.4000 .	.4250 .500	.6000	.7000	.8250					
Z(WL) 375.000 400.000	*****	.0001	. 003	20******	.0005						
425.000 465.000	. 0044	.0037	*****	.0024	.0028						
501.000	.0288******	.0036	.003	.0002	.0040						
ALPHA (2)	= -5.000 HA	× (S)TH\WA	.900	RN/L =	.38200	PO	× 4022.3	TD	~ 2959.6	HÖ	= .51000-01
SECTION (1380DY		DEPE	DENT VARIA	BLE H/HRE	EF					•
X/L	.1700 .3000	.4000 .	.4250 .500	.6000	.7000	.8250	-				
Z(WL) 375.000 400.000		.0001	.001	9*******	.0005						
425.000	.0041	.0035	444444	.0022	.0026						
465.000 501.000	.0267*****	.0033	.003	.0001	.0037	******					
ALPHA (2)	= -5.000 H	AW/HT(3) =	1.000	RN/L =	.38200	P0	= 4022.3	TO	2959.6	HO.	= .51000-01
SECTION (1)80DY	•	DEPE	NDENT VARIA	BLE H/HRE	EF					
X/L	.1700 .3000	.4000 .	.4250 .500	0000. 00	.7000	.8250					
Z(WL) 375.000 400.000	******	.0001	.00: .0027	6444444	.0004						
425.000 465.000	.0036	.0030	*****	.0019	.0023						
501.000	.0233*****	.0029	.00:	1000.	.0032						
ALPHA (3)	= .000 H	AW/HT(1) =	.850	RN/L =	.36500	PO	= 4066.2	T _. O	= 3039.6	НО	= .51000-01
SECTION (1180DY		DEPE	NDENT VARIA	BLE H/HRE	EF.					
X/L	.1700 .3000	.4000 .	.4250 .509	.6000	.7000	.8250					
Z(WL) 375.000 400.000	******	.0002	.00)7******	.0008						•
425.000 465.000	.0060	.0014	*****	.0024	.0013						
501.000	.0661*****	.0009	.00	94++++++	.0014						

DATE 03 NOV	75	TABUL	ATED SO	URCE DATA	- LACR	NS-58 (1	H(9)							PAGE	67
			ĮН	19 B22C7F	5M4V7W11	1 T8 OR	BITER UP	PER A	USELAGE			(RQEU03)			
ALPHA (3)	# .000	HAW/HT(&	?) =	.900 R	N/L =	.36500	PO	FIS.	4066.2	то	16	3039.6	но		.51000-01
SECTION (118004			DEPENDE	NT VARIA	BLE H/HR	EF								
X/L	.1700 .3	.4000	. 4250	.5000	.6000	.7000	.8250								
Z(WL: 375.000 480.000	# + + 4 ¢	.0002	. 0035	• 7007	*******	.0008									
425.000 465.000	.0	0058 .0013			.0023	.0012									
501.000	0614****	8000.		.0022*	*****	.0013	4 6 0 4 6 0 9								
ALPHA (3)	= .000	HAW/HT(3) =	1.000 RI	N/L =	.36500	PO	•	4066.2	TO	21	3039.8	но	#47	.51000-01
SECTION (1380DY			DEPENDE	NT VARIA	BLE H/HR	EF								
X/L	.1700 .3	.4000	.4250	.5000	.6000	.7000	.8250								
Z(WL) 375.000 400.000	****	.0001	.0030	.0006*	3604050	.0007	•								
425.000 465.000	.0	1100. 840		******	.0020	.0010									
501.000	.0539****	.0007		.0019*	•••••	.0012									
ALPHA (4)	= 5.000	HAM/HT(1) m	.850 RM	N/L =	.36230	PO	15	4029.4	ŤΟ	W	3039.6	HO	n	.51000-01
SECTION (13B0DY			DEPENDEN	NT VARIA	BLE H/HRI	EF								
X/L	.1700 .7	000 .4000	.4250	.5000	.6000	.7000	.8250								
Z(WL) 375.000 400.000	****	.0001	.0` ~	.0016**		.0005									
425.000 465.000	.0	037 .0027			.0016	.0008	.0002								
501.000	.0364 .0	8500. 800		.0020**		.0015	.000€								
ALPHA (4)	= 5.000	HAW/HT(2) =	.900 RM	4 /€ =	.36200	PO	=	4029.4	то	E	3039.6	но	122	.51000-01
SECTION (1 1 BODY			DEPENDEN	NT VARIA	BLE H/HR	EF								
X/L	.1700 .3	.4000	.4250	.5000	.6000	.7000	.8250								
Z(WL) 375.: 19 400.000	****	.0001	.0021	.0015**	****	.0004									
425.000 465.000		035 .0025	4	******	.0015	.0008	2000								•
501.000	.0338 .0	006 .0027		.0019**	•••••	.0014	.0000								

DATE 03 NOV	75		TABULAT	ED SOU	RCE DATA	- LACR N	12-58 (IH	191							PAGE	69
				1111	B22C7F5	M4V7H111	TE ORE	ITER UPPE	R F	USELAGE			(RQEU03)			
ALPHA (4)	= 5.0	00 HA	MYHT(3)				.36200	P0		4029.4	70	15	3039.6	HO	4	.51000-01
SECTION (1180DY				DEPENDEN	IT VARIA	OLE H/HRE	F								
X/L	.1700	.3000	.4000	.4250	.5000	.6000	.7000	.8250								
Z(WL) 375.000	2.6	3 4 4 4 4	.0001		.0013**	*****	.0004									
400.000 425.000		.0030	. 0022	.0019		.0013	.0007	.0001								
465.000 501.000	.0296	.0005	.0023		.0016**		.5012	.0001								
ALPHA (5)	= 10.0	ю н	AW/HT(1)	=	.850 RM	√ 1/L ≃	.36900	PO	=	4027.6	TO	122	3009.6	но	123	.51000-01
SECTION (11B0DY				DEPENDEN	NT VARIA	BLE H/HRE	F		٠						
X/L	.1700	.3000	.4000	.4250	.5000	.6000	.7000	.8250								
Z(WL) 375.000	• •	*****	.0002	.0027	.0018	.0002	.0005									
400.000 425.000		.0030	.0016		*****	.0019	.0006	.0002								
465.000 501.000	.0136	.0002	.0018		.0017	.0003	.0008	******								
ALPHA (5)	= 13.0)00 н	AW/HT(2)	12	.900 R	N/L =	.36900	P0	6	4027.6	ŢQ	121	3009.6	но	₩.	.51000-01
SECTION (11B0DY				DEPENDE	NT VARIA	BLE H/HRI	EF								
X/L	.1700	.3000	.4000	.4250	.5000	.6000	.7000	.8250								
Z(HL) 375.000	•		.0002		.0016	.0002	. 0005									
400.000 425 000		.0028	.0015	.0025	******	.0018	.0005									
465.000 501.000	.0126	.0002	.0017		.0016	.0003	.0008	.0001								
ALPHA (5)	= 10.	000 H	IAW/HT(3)	=	1.000 R	N/L =	០៤ខ៌្មែន .	PO	34	4027.6	TO	=	3009.6	HO	tst.	.51000-01
SECTION (1180DY				DEPENDE	NT VARIA	ABLE H/HR	EF								
X/L	.1700	.3000	.4000	.4250	.5000	.6000	.7000	.8250								
Z(WL) 375.000	•	******	.0001		.0014	.0002	.0004									
400.000 425.000		.0024	.0013	.0022		.0016	.0005									
465.000 501.000	.0111	.0002	.0015		.0014	S000.	.0007	.0001								

DATE 03 NOV 75

TABULATED SOURCE DATA - LACR N2-28 (IH19)

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(03 NOV 75)

IH19 B22C7F5M4Y7W111 TO ORBITER UPPER FUSELAGE

(RQEU04) PARAMETRIC DATA

	REFEREN	NCE DAT	Ά											PA	RAMETRIC	DATA		
LREF = 12!	30.0000 50 30.3000 IN 30.3000 IN	N.	XMRP = YMRP = ZMRP =		.0009 .0000 .0000							BETA BLTR1P MACH	20 23 22		.000 .030 .038 .008	RN/L = DELTAH =		.500 .175
ALPHA (])	= -10.000	O HA	(1)TH\W	並	.850	RNZI	L ≖	.37900	P0		3992.5	то		#	2959.6	HO	=	.51000-01
SECTION (1 180DY				DEPEN	DENT	VARIA	BLE H/HRE	F									
X/L	.1700	.3000	.4000	.4250	.500	0	.6000	.7000	.8250									
Z(WL) 375.000	***		.0005		.002	:5	.0005	.0009										
400.000 425.000		.0063	.0062	.0042		•	.0043	.0036										
465.000 501.000	.0716	.0001	.0062		.007	/Lj q + 4	****	.0065										
ALPHA (1)			WYHT(2)	*	.900	RN/	լ ≖	.37900	PO	**	3992.5	то			2959.6	HO	**	.51000-81
			.,,,,,,,						- -									
SECTION (LIBODA				UEPEN	ADEM I	VARIA	BLE H/HRI										
X/L	.1700	.3000	.4000	.4250	.500	30	.6000	.7000	.8250									
Z(WL) 375.000	444		.0005		. 008	7	.0004	.0009										
400.000				.0039														
425.000 465.000		.0059	.0057		• • • • • • •	•	.0040	.0033	****									
501.000	.0665	.000:	.0058		.006	59***	****	.0061										
ALPHA (1)	= -10.00	10 H	(E)TH\HA	3	1.000	RN/	L =	.37900	PO	**	3992.5	TO		•	2959.6	но	=	.51000-01
SECTION (13B0DY				DEPE	NDENT	VARIA	BLE HYHR	EF									
X/L	. 1700	.3000	.4000	.4250	.50	00	.6000	.7000	.8250									
Z(WL)			0000		.00	21	.0004	.0008										
375.000 400.000	444		.0004	. 0034		5 l												
425.000		.0051	.0050		•••••	• •	.0035	.0029										
465.000 501.000	.0582	.0001	.0051		.00	61***	*****	.0053	*									

DATE US NO	75		IABULA	IED SOL	RCE DATA	- LACR	NS-58 (1)	119)						PAGE	70
				IH1	9 82207F5	5M4V7W11	1 TB ORE	BITER UP	PER FUSELAGE			(RQEU04)			
ALPHA (2)	-5.0 0	DO H/	WALL D	*	.850 RM	1/L =	.38000	PO	= 4032.9	то	131	2969.6	HO	75	.51000-01
SECTION (1)B0DY				DEPENDEN	NT VARIA	BLE H/HRE	F							
X/L	.1700	.3000	.4000	.4250	.5000	.6000	.7000	.8250							
Z(HL) 375.001		.0080	.0002		.0031	.0001	.0005						٠		
400.000 425.000		.0057	.0035	.0038		.0026	.0025					•			
465.000 501.000	.0556	.0001	.0031		.0039••		. 005Կ	1060464							
ALPHA (2)	= -5.00	00 HA	WYHT(2)	E	.900 RA	1/∟ =	.38000	PO	× 4032.9	TO	æ	2969.6	но	=	.51000-01
SECTION (1)B0DY				DEPENDEN	IT VARIA	BLE H/HRE	F							
X/L	.1700	.3000	.4000	.4250	.5000	.6000	.7000	.8250							
2(紀) 375.000		.0071	.0002		.0029	.0001	.0005								
400.000 425.000		.0053	.0033	.0035	******	.0024	.0023								
465.000 501.000	.0517	.0001	.0029		.0037**		.0050	******							
ALPHA (2)	× -5.00	00 HA	W/HT(3)	= 1	.000 RN	! /L =	.38000	PO	= 4032.9	то	*	2969.6	но	21	.51000-01
SECTION (I 1BODY				DEPENDEN	IT VARIA	BLE H/HRE	F							
X/L	.1700	.3000	.4000	.4250	.5000	.6000	.7000	.8250							
Z(WL)															
375.000 400.009		.0059	.0001	.0031	.0025	.0001	.0004								
425.000 465.000		.0047	.0029	•	0140004	.0021	.0020								
501.000	.0453	.0001	.0026		.0032**	4 4 4 4 6 6	.0044								
ALPHA (3)	= .08	OG HA	W/HT(1)	=	.850 RN	!/L ≖	.36000	P0	4013.6	TO		3039.6	HO	*	.51000-01
SECTION (1 1 BODY				DEPENDEN	IT VARJA	OLE H/HRE	F							
X/L	.1700	.3000	.4000	.4250	.5000	.6000	7000	.8250		•					
Z(HL) 375.000 400.000	¢ 9 :	4 4 4 4 4 4	.0009	.0334	.0018	.0002	.0007								
425.000 485.000		.0044	.0021		******	.0022	.0020	*****							
501.000	.0463	.0012	.0019		.0014	****	.0013	*******							

PAGE 71 **DATE 03 NOV 75** TABULATED SOURCE DATA - LACR N2-28 (IH19) (RQEU04) IH19 B22C7F5M4Y7W11! TB ORBITER UPPER FUSELAGE **=** .51000-01 ALPHA (3) = .000 HAH/HT(2) =.900 RN/L = .36000 PO 4013.6 TO 3039.6 HO SECTION (1)BODY DEPENDENT VARIABLE H/HREF X/L .1700 .3000 .4000 .4250 .5000 .6000 .7000 .8250 Z(WL) 375.000 ****** .0002 .0007 .0008 .0017 400.000 .0031 .0019 .0020 425.000 .0041 .0019 465.000 501.000 .0430 .00:1 .0017 .00130***** .0012 .51000-01 ALPHA (3) =.000 HAW/HT(3) = 1.000 RN/L □ .35000 PO = 4013.6 3039.6 SECTION (1)BODY DEPENDENT VARIABLE HITHREF X/L .1700 .3000 .4000 .4250 .5000 .6000 .7000 .8250 Z(WL) .0007 375.000 ******* .0015 .0002 .0006 400.000 .0027 425.000 .0016 .0036 .0017 .0018 465.000 501.000 .0376 .0009 .0015 .0011******* .0011 ALPHA (4) = 5.000 × 4020.6 10 **2969.6** H0 = .51000-01 HAW/HT(1) = .850 RN/L .37900 PO SECTION (11BODY DEPENDENT VARIABLE H/HREF X/L .1700 .3000 .4000 .4250 .5000 .7000 .8250 .5000 Z(WL) 375.000 .0079 .0004 .0022******* .0002 900 000 .0027 425.000 .0034 .0028 .0018 .0009 465.000 501.000 .0249 .0001 .0027 .0020****** .0011 = .51000-01 = 2969.6 HO ALPHA (4) = 5.000 HAW/HT(2) = .900 RN/L .37900 PO ¥ 4020.6 TO SECTION (1)BODY DEPENDENT VARIABLE H/HREF X/L .1700 .3000 .4000 .8250 .4250 .5000 .6000 .7000 Z(WL) 375.000 .0071 .0003 .0020****** .0002

400.000

425.000

465.000 501.000 .0025

.0017

.0018******

.0009

.0010

.0032

.0001

.0232

.0026

DATE 03 NOV	75		TABULAT	ED SOUF	RCE DATA	- LACR N	12-28 (IH	1191							PAGE	72
				1419	9 822C7F5	M4 V7W1 11	18 ORE	ITER UPPE	ER F	USELAGE			(RQEU04)			
ALPHA (4)	= 5.0	00 HA	W/HT(3)	= i	.000 RN	/L =	.37900	PO	**	4020.6	TO	18	2969.6	HO	*	.51000-01
SECTION (YOOBLI				DEPENDEN	T VARIA	BLE H/HRE	F								
X/L	. 1700	.3000	.4000	.4250	.5000	.6000	.7000	.8250								
Z(WL)						-	2022									
375.000 400.000		.0059	.0003	.0022	.0018**		.0002									
425.000 465.000		.0028	.0023	•	444246	.0015		0.00000								
501.000	.0203	.0001	.0022		.0016**		.0009					_	2020 5	но	**	.51000-01
ALPHA (5)	= 10.0	100 HA	MZHT(I)	=		1/L =	.36900	PO	7	3967.9	TO	=	2989.6	NU		.51400 51
SECTION (11BODY				DEPENDEN	IT VARIA	BLE H/HR	EF								
X/L	. 1700	.3000	.4000	.4350	.5000	.6000	.7000	.8250								
Z(WL) 375.000	4 4	*****	.0002	6623	.0013	.0001	.0001									
400.000 425.000		.0029	.0020	.0023	*****	.0017	.0014	.0002								
465.000 501.000	.0116	.0002	.0013		.0015	.0000	.0007	.0002				•				
ALPHA (5)	= 10.0	ооо н	(S) TH\W	**	.900 RI	N/L =	.000	PO	*	3957.9	TO	**	2989.6	HO	12	.51000-01
SECTION (1180DY				DEPENDE	NT VARIA	OLE H/HR	EF								
X/L	. 1700	.3000	.4000	.4250	.5000	.6000	.7000	.8250								
Z(WL) 375.000	•		.0002		.0012	.0001	.0001									
400.000 425.000		.0027	.0018	.0022		.0015	.0013									
465.000 501.000	.0108	.0002	.0012		.0014	.0000	.0007	.0002								
ALPHA (5)			AW/HT(3)	=	1.000 R	N/I. =	.36900	PO	122	3967.9	то		2989.6	HO	=	.51000-01
SECTION (LIBODY				DEPENDE	NT VARIA	ABLE H/HF	REF								
X/L	. 1700	.3000	.4000	.4250	.5000	.6000	.7000	.8250								
2(HL) 375.000	•		.0001	.0019	.0011	.0001	.0001									
400.000 425.000		.0024	.0016		******	.0014	.0012	. 0001								
465.000 501.000	. C 794	.0002	.0011		.0013	.0000	.0006	.0201								

DATE 93 NOV 75

TABULATED SOURCE DATA - LACE N2-28 (1H19)

PAGE

TABLET SOUNCE DATA - EACH NE-EG (IMIS)								THUE 13			
		1418 82	1H1B B22C7F5M4V7W111 0			ORBITER UPPER FUSELAGE			(RQEU05) (03 NOV 75)		
REFERENCE DATA									PARAMETRIC	DATA	
LREF = 12	90.0000 SQ.FT. 90.3000 IN. 90.3000 IN. .0060	XMRP # YMRP # ZMRP ***						BETA = BLTRIP =	.000 .000	RN/L =	
ALPHA (1)	= -10.000 H	(1) THYWAH	# 850	RN/L #	.38000	PO	= 4008.3	70	= 2959.6	но	· .51000-01
SECTION (1)BODY DEPTNOENT VARIABLE HYHREF											
X/L	.1700 .3000	.4000	.4250 .5	0003. 000	.7000	.8250					
Z(HL) 375.000 400.000 425.000 465.000		******	. 0042	1000. 830	.0005						
	.0058	.0078	*****	, 50-10	.0031	.0002			-		
501.000	.0694******	.0087	.0	088 .0003	.0062						
ALPHA (1)	= -10.000 i	(S) TH/WAH	= .900	RN/L 5	.38000	PO	# 4008.3	TO	= 2959.6	НО	= .51000-01
SECTION (1)BODY DEPENDENT VARIABLE H/HREF											
X/L	.1700 .3000	.4000	.4250 .5	0000. 000	.7000	.8250					
Z(WL) 375.000 400.000	.0005		.0.39	1000 . 0001	.0005						·
425.000 465.000	.0054	.0072	****	.0037	.0029	.0002					
501.000	. 0644 * * * * * * *	.0081	.0	082 .0003	.0058						
ALPHA ()	= -10.000 I	HAH/HT(3)	= 1.000	RN/L =	.38000	PO	= 4008.3	TO	2959.5	HO	₽ .51000-01
SECTION (1)20DY DEPENDENT VARIABLE H/HREF											
X/L	.1700 .3009	.4000	.4250 .5	0000. 000	.7008	.8250					
Z(HL) 375.000 400.000	.0005*****		.0034	1000. 250	. 0004				·		
425.000 465.000	.0047	.0063	89656	\$200.	.0025	.0002					
501.000	.0562******	.0071	.0	072 .0002	.0051	י המחק					

.0002

DEPENDENT VARIABLE HIHREF

.6000

.0002

.0004

.0016**

.5000

.0017

.0027

.4250

.0026

.7000

.0005

.0026

PAGE

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ا معیورین معیورین SECTION (1)BODY

X/L

Z(WL)

375.000

400.000

425.000

465.000

501.000

.1700

.3000

.0042

.0480******

.4000

.0032

.0030

.0015******

o na najvija i najvija je i jelika najvija i jelika najvija i jelika najvija najvija najvija najvija najvija n

PAGE

DATE 03 NOV 75

TABULATED SOURCE DATA - LACR N2-28 (1H19)

Section (1) Sect					IHI	9 82207	F5M4V	7W111	ORE	ITER UPP	ER F	USELAGE			(RQEU05)			
SECTION (1)800Y X/L 1700 3000 4000 4250 5000 8000 7000 .8250 2(141) 375.000 0.000 400.000 0.000 0.0000 .0024	ALPHA (3)	. .00	o HA	(S) THVM	•	.900	RN/L	m	. 35808	PO	st	3982.0	TO	R	3039.6	HO	12	.50000-01
X/L						DEPEND	ENT V	ARIA	OLE H/HRE	F								
7(NL) 375.000 400.0000 405.000			2000	րսսս Մ	425N													
375.000		.1 100	. 2000	.4000	, ,,,,,,,	13000	, ,-		*****									
425.000 465.000 501.00	375.000		.0014**	*****	anan	.0016	3.	2000	.0005									
\$01.000	425.000		.0040	.0030		******		015*	200000	0002					•			
SECTION (1)BODY DEPENDENT VARIABLE H/HREF X/L .1700 .3000 .4000 .4250 .5000 .6000 .7000 .8250 Z(HL) .7700 .3000 .4000 .4250 .5000 .6000 .7000 .8250 ALPHA (4) = 5.000 HAH/HT(1) = .850 RN/L * .38400 PO = .3975.0 TO = .3009.6 HO = .51000-01 SECTION (1)BODY DEPENDENT VARIABLE H/HREF X/L .1700 .3000 .4000 .4250 .5000 .6000 .7000 .8250 Z(HL) .375.000 .00369****** .0024 .0024 .0011 .0011 485.000 .00369****** .0021 .0015****** .0010 ALPHA (4) = 5.000 HAH/HT(2) = .900 RN/L * .38400 PO = .3975.0 TO = .3009.6 HO = .51000-01 SECTION (1)BODY DEPENDENT VARIABLE H/HREF X/L .1700 .3000 .4000 .4250 .5000 .6000 .7000 .8250 Z(HL) .375.000 .0369****** .0021 .0015****** .0010 ALPHA (4) = 5.000 HAH/HT(2) = .900 RN/L * .38400 PO = .3975.0 TO = .3009.6 HO = .51000-01 SECTION (1)BODY DEPENDENT VARIABLE H/HREF X/L .1700 .3000 .4000 .4000 .4250 .5000 .6000 .7000 .8250 Z(HL) .375.000 .0036****** .0021 .0015****** .0010 ALPHA (4) = .5000 HAH/HT(2) = .900 RN/L * .38400 PO = .3975.0 TO = .3009.6 HO = .51000-01 SECTION (1)BODY DEPENDENT VARIABLE H/HREF X/L .1700 .3000 .4000 .4250 .5000 .6000 .7000 .8250 Z(HL) .375.000 .0002****** .0020 .0001 .0002 400.000 .0004 .0002****** .0002 .0000 .		, jitil Gaaa	*****	.0028		.0025	c	1003	.0024	.0000								
X/L	ALPHA (3)	» .00)O HA	W/HT(3)	= 1	1.000	RN/L	•	.35800	PO	R	3982.0	TG	22	3039.8	HO	*	.50000-01
Z(HL) 375.000 405.000	SECTION (13B0DY				DEPEND	DENT \	/ARIA	BLE H/HR	EF								
100 1000 1	X/L	.1700	.3000	.4090	.4250	.5000	9.6	9000	.7000	.8250								
125.000			.0012**			.0014	+ .(0001	.0004									
#65.000			.0035	.0025			• .(0013*	40****									
ALPHA (4) = 5.000 HAW/HT(1) = .850 RN/L = .36400 PO = 3975.0 TO = 3009.6 HO = .51000-01 SECTION (1)BODY DEPENDENT VARIABLE H/HREF X/L .1700 .3000 .4000 .4250 .5000 .5000 .7000 .8250 Z(HL)	465.000	0.4050	*****	.0024		.002	2 .	0003	.0021	.0002								,
SECTION (1)BODY DEPENDENT VARIABLE H/HREF X/L					•	.850	RN/L	tn	.36400	PO	#2	3975.0	то	23	3009.6	HO		.51000-01
X/L .1700 .3000 .4000 .4250 .5000 .6000 .7000 .8250 \[\begin{array}{cccccccccccccccccccccccccccccccccccc				•		DEPENI	DENT '	VARIA	BLE H/HR	EF								
Z(HL) 375.000 400.000 425.000 501.000 0.0369******* .0021 0.015****** .0010 ALPHA (4) = 5.000 HAH/HT(2) = .900 RN/L = .36400 PO = 3975.0 TO = 309.6 HO = .51000-01 SECTION (1)BODY DEPENDENT VARIABLE H/HREF X/L .1700 .3000 .4000 .4250 .5000 .6000 .7000 .8250 Z(HL) 375.000 400.000 425.000 425.000 10041 .0022 10061 10061 10062 10061 10061 10062 10061 10061 10062 10061 10062 10061 10061 10062 10061 10061 10061			2000	unna	นฮรถ													
375.000		. 1 700	, 3000	. 1000	. 1230													
425.000	375.000		.0002•				ì .	1000	.0002									
501.000 .0369****** .0021 .0015****** .0010 ALPHA (4) = 5.000 HAH/HT(2) = .900 RN/L * .36400 PO = 3975.0 TO = 3009.6 HO = .51000-01 SECTION (1)BODY DEPENDENT VARIABLE H/HREF X/L .1700 .3000 .4000 .4250 .5000 .6000 .7000 .8250 Z(HL) 375.000 .0022****** .0020 .0001 .0002 400.000 .0041 .0022 ******* .0010 .0010 465.000 .0041 .0022 ******* .0000			.0044	. 0024	.0024		• .	0011	.0011	2001								
ALPHA (4) = 5.000 HAM/HT(2) = .900 RN/L = .36400 PO = 3975.0 TO = 3009.6 HO = .51000-01 SECTION (1)BODY DEPENDENT VARIABLE H/HREF X/L .1700 .3000 .4000 .4250 .5000 .6000 .7000 .8250 Z(HL) 375.000 .0002 .0002 .0000 .0001 .0002 400.000 .0041 .0022 .0000 .0010 .0000 455.000 .0041 .0022 .0000		.0369**	*****	.0021		.001	54644	0 6 0 0	.0010	. 4401								
X/L .1700 .3000 .4000 .4250 .5000 .6000 .7000 .8250 Z(HL) 375.000 .0002****** .0020 .0001 .0002 400.000 .0020 .0020 .0010 425.000 .0041 .0022 ******* .0010 .0010 465.000 .0041 .0022 ******* .0001				S THYHAI) =	.900	RN/L	*	.36400	P0	-	3975.0	TO	-	3009.6	HO	8	.51000-01
Z(HL) 375.000 .0002****** .0020 .0001 .0002 400.000 .0020 .0020 425.000 .0041 .0022 ******* .0010 .0010 465.000 .0001	SECTION (() BODY				DEPEN	DENT	VAR1/	ABLE HYHR	REF								
375.000 .002****** .0020 .0001 .0002 400.000 .0041 .0022 ******* .0010 .0010 425.000 .0041 .0022 ******* .0001	X/L	.1700	.3000	.4000	.4250	.500	. 0	6000	.7000	.8250								
425.000 .0100.0010 ******* .0010 .0001 465.000 .0001	375.000		.0002•	*****			20 .	0001	.0002									
462,000			.0041	.0022	.0028		id .	0010	.0010	0061								
		.0343**	*****	.0019		.001	Lie • • •	4 6 6 4	.0009	. 0001								

DATE 03 NOV	75		TABULAT	ED SOL	IRCE DAT	TA - LACR	N2-28 (II	4197							PAGE	76
				IH	a 855C.	7F5M4V7W1 I	ı ore	BITER UPP	ER F	USELAGE			(RQEU05)			
ALPHA (4)	= 5.00	30 H/	AH/HT(3)	= 1	.000	RN/L =	.36400	PO	15	3975.0	TO	=	3009.6	НО		.51000-01
SECTION (1180DY				DEPEN	DENT VARIA	BLE H/HRE	EF								
X/L	.1700	.3000	.4800	.4250	.5000	.6000	.7000	.8250								
Z(HL) 375.000		.0002**			.001	7 .0000	.0002									
400.000 425.000		.0036	.0019	.0020		• .0009	.0009									
465.000 501.000	.0301**		.0017		.001	3000000	. n	1000								
ALPHA (5)	_		AW/HT(1)	22	.850	RN/L =	.38100	PO	-	4011.B	TO	-	2959.6	HO	8	.51000-01
SECTION (,		.,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,		DEPEN	DENT VARIA	BLE H/HRI	EF								
X/L	.1700	.3000	.4000	.4250	.500		.7000	.8250								
Z(HL)																
375.000		.0002*		.0033	.003	3******	.0007									
400.000 425.000		.0042	.0024		****	• .0024	.0028	.0001								
465.000 501.000	.0237**	****	.0022		.001	1 .0001	.0007	.0001								
ALPHA (5)	= 10.0	00 H	AH/HT(2)	*	.900	RN/L =	.38100	PO	*	4011.8	TO	19	2959.6	HO	懂	.51000-01
SECTION (1180DY				CSPEN	DENT VARIA	BLE H/HR	EF								
X/L	. 1700	.3000	.4000	.4250	.500	0008. 0	.7000	.8250								
Z(WL)																
375.000 400.000		.0002*	444440	.0031		0 * * * * * * * * *	.0007									
425.000 465.000		.0039	.0023		******	• .0022	.0026	.0001								
501.000	.0220**	*****	.0021		.001	1 .0001	.0007									F1000 01
ALPHA (5)	= 10.0	100 н	(E) THYWAI	•	1.000	RN/L =	.39100	PO	=	4011.8	TO	15	2959.6	HO	#	.51000-01
SECTION (11BODA,				DEPEN	DENT VARIA	ABLE H/HR	EF								
X/L	.1700	.3000	.4000	.4250	.500	.6000	.7000	.8250								•
Z(WL)		0000			ons	740046300	.0006									
375.000 400.000				.0027			.0023									
425.000 465.000		.0035	.0020					.0001								
501.000	.0193•		.0018		.000	.0001	.0008									

DATE 03 NOV 75

465.000

501.000

.0635******

.0074

The following the stage of the stage of the stage of the stage of

TABULATED SOURCE DATA - LACE NE-28 (IHI9)

PAGE 77 1H19 B22C7F5M4V7W111 ORBITER UPPER FUSELAGE (RQEUOS) (03 NOV 75) REFERENCE DATA PARAMETRIC DATA SREF 2690.0000 SQ.FT, XMRP .0000 LREF 1290.3000 IN. 73 YMRP BETA .0000 .000 RN/L BREF * .500 1290.3000 IN. BLTRIP . ZMRP .0000 .000 MACH 19.800 SCALE = .0060 ALPHA (1) = -10.000 HAW/HT(1) = RN/L .35500 PO 4010.1 TO 3019.6 HO SECTION (1)BODY .51000-01 DEPENDENT VARIABLE HYHREF X/L .1700 .3000 .4000 .4250 .5000 .6000 .7000 .8250 Z(WL) 375.000 .0024****** .0028***** 400.000 .0004 .0041 425.000 .0062 .0087 .0036 465.000 .0031 501.000 .0000 .0783****** .0090 .0090****** .0068 ALPHA (1) = -10.000 HAW/HT(2) = .900 RN/L .35500 PO 4010.1 = 3019.6 HO SECTION (1)BODY ≈ .51000-01 DEPENDENT VARIABLE HYHREF X/L .1700 .3000 .4000 .4250 .5000 .6000 .7000 .8250 Z(WL) 375.000 .0023****** .0026****** 400.000 .0004 .0038 425.000 .0058 .0081 465.000 .0033 .0029 501.000 .0000 .0727****** .0084 .0084****** .0063 ALPHA (1) = -10.000 HAW/HT(3) = 1.000 RN/L = .36500 PO 4010.1 TO 3019.6 HO SECTION (1180DY .51000-61 DEPENDENT VARIABLE HIHREF X/L .1700 .3000 .4000 .4250 .5000 .6000 .7000 .8250 Z(WL) 375.000 .0021****** .0023****** 400.000 .0003 .0034 425.000 .0051 .0071 .0029

.0025

.0056

.0073******

יטו בט אוני	, 13		IABULA	HED SOL	JRCE DATA	- LACR	NS-58 (1	H19)							PAGE	78
				IH)	19 B22C7F	5M4V7W11	1 OR	BITER UP	PER F	USELAGE			(RQEUO6)			
ALPHA (2)	= -5.	000 н	() THYWA		.850 R	N/L =	.36400	PO	*	3999.5	70	23	3019.6	но		.51000-01
SECTION (1 JEODY				DEPENDE	NT VARIA	BLE H/HR	EF								
X/L	.1700	.3000	.4000	.4250	.5000	.6000	.7000	.8250								
Z(HL) 375.000 400.000		• 1500.	******	.0031	.0019	.0001	.0006									
425.000 465.000		.0051	.0050		*****	.0025	.0023						•			
501.000	.0740•	•••••	.0052		.0052+	,	.0058	~ ~ 6 * • • •								
ALPHA (2)	= -5.0	000 н	(S)TH\WA	*	.900 R	N/L =	.36400	PO	r-	3999.5	TO	•	3019.6	но	•	.51008-01
SECTION (11BODY				DEPENDE	NT VARIA	BLE H/HRE	EF								
X/L	. 1700	.3000	.4000	.4250	.5000	.6000	.7000	.8250								
Z(HL) 375.000		.0020•	******		.0017	.0001	.0006									
400.000 425.000		.0048	.8047	.0029	******	. 0023	., 0022									
465.000 501.000	.0687••		.004B		.0049*			*****								
ALPHA (2)	- -5.0	000 н	AW/HT(3)	n j	.000 RI		.36400	Р0	*	3999.5	TO	•	3019.6	110	# .	E1000-01
SECTION (13800Y					-	BLE H/HRE	· -		3333.3	10	_	2012.0	но		51000-01
X/L	.1700	.3000	.4000	.4250	.5000	.6000	.7000	.8250								
2(HL) 375.000 400.000		.0018**			.0015	.0001	.0005									
425.000		.0042	.0041	.0025	•••••	.0021	.0019									
465.000 501.000	.0601 • •	*****	.0042		.0043**	*****		****	•							
ALPHA (3)	- .0	000 н	AW/HT())	*	.850 RA	4 /∟ **	.35600	PO	*	3968.2	то		3039.6	HO	u .	50000-01
SECTION (LIBODY				DEPENDEN	NT VARIA	BLE H/HRE	F					000010	110	- •	20000-01
X/L	. 1700	.3000	.000	.4250	.5000	.6000	.7000	.8250								
Z(WL) 375.000 400.000	4 4	*****	.0065	20~	.0019	.0000	.0006									
425.000		.0043	.0025	.0030	*****	.0024	.0018									
465.000 501.000	.0460	.0072	.0024		.0029	.0002	.0025	.0001								

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DATE 03 NO	<i>7</i> 5		TABULA	ATED SO	URCE DAT	A - LACR	NS-58 (1	ніві							PAGE	79
				1H	19 82207	/F5M4V7W1	ll OR	BITER UP	PER F	USELAGE			(RQEUOS)			
ALPHA (3)	Æ	.000	HAW/HT(2)		.900	RN/L =	.35600	PO	-	3966.2	TO	19	3039.6	но	==	.50000-01
SECTION (1180DY	•			DEPEND	ENT VARIA	ABLE H/HR	EF						_		
X/L	. 1700	.3000	.4000	.4250	.5000	.6000	.7000	.8250								
Z(WL) 375.000 400.000		*******	.0059	.0029	.0018	.0000	.0005									
425.000 465.000		.0040	.0023			.0022	.0017	0501								
501.000	.0428	.0064	.0022		.0027	.0002	.0023	.0001								
ALPHA (3)	=	.000	HAW/HT(3)	•	1.000	RN/L =	.35600	PO	*	3966.2	TO	44	3039.6	HD		.50000-01
SECTION (1180DA				DEPEND	ENT VARIA	BLE H/HR	ΕΓ								
X/L	.1700	.3000	.4000	.4250	.5000	.6000	.7000	.8250								
Z(WL) 375.000 400.000		*****	. 0049	.0024	.0016	. 0000	. 0005									
425.000 465.000		.0035	.0020		*****	.0019	.0015	0001								
501.000	.0376	.0053	.0020		.0024	.0002	.0020	.0001								
ALPHA (4)	* 5	.000	HAW/HT(1)	F	.850	RN/L =	.39500	PO	=	4018.8	TO	=	2909.6	но		.52000-01
SECTION (1 180DY				DEPENDI	ENT VARIA	BLE H/HR	ĒF								
X/L	.1700	.3000	.4000	.4250	.5000	.6000	.7000	.8250								
Z(HL) 375.000 400.000		.0016	*****	.0028	.0023	* * * * * * * 4 *	.0008									
425.000 465.000		.0041	1500.		*****	.0018	.0020									
501.000	.0387	*******	.0021		.0022	****	.0014	.0003								
ALPHA (4)	~ 5	.000 1	(S) TH\WAH	D#	.900 f	RN/L =	.39500	PO	=	4018.8	TO	¥	2909.6	но		.52000-01
SECTION (1 180DY				DEPENDE	ENT VARIA	BLE HYHRE	F						.,,		
X/L	.1700	.3000	.4000	.4250	.5000	.6000	.7000	.8250								
Z(WL) 375.000 400.000		.0015	******	.0026	.0021		.0007									
425.000 465.000		.0038	.0019		******	.0017	.0018									
501.000	.0360	******	.0020		.0020	******	.0013	.0002								

DATE 03 NOV	75		IABULAI	בט סטנ	RUE DATA	- FACU I	AL 10 411									
				1H1	9 B22C7F5	M4V7W11	i ORE	HITER UPP	ER FI	USELAGE			(RQEU06)			
ALPHA (4) :	5. 00	IAH OO	H/HT(3)	r !	.000 RN	/L =	.39500	PO	*	4018.8	TO	123	2909.6	HO		.52000-01
SECTION ()	YGOB(I				DEPENDEN	T VARIA	BLE H/HRE	F								
X/L	. 1700	.3000	.4000	.4250	.5000	.6000	.7000	.8250								
Z(WL) 375.000		**2100.	4 + + + -	.0022	.0019**	*****	.0006							•		
400.000 425.000		.0034	.0317			.0014	.0016	.0002						•		
465.000 501.000	.03154#	04450	.0017		.0018**	*****	.0012	.0000								
ALPHA (5)	= 10.0°	00 HA	W/HT(1)	TK.	.850 RA	I/L =	.30000	PO	##	4006.5	TO	tæ	2959.6	HD	22	.51000-01
SECTION (YGOBC				DEPENDEN	IT VARIA	BLE H/HRE	EF								
X/L	.1700	.3000	.4000	.4250	.5800	.6000	.7000	.8250								
Z(以し) 375.000 400.000		.0029**	*****	.0033	.0029**	****	.0006									
425.000		.0042	.0028		*****	.0025	.0028	.0001								
465.000 501.000	.0242	.0073	.0019		.0019*	*****	.0009									
ALPHA (5)	= 10.0	AH 001	(S) THYW	*	.900 RI	4/L =	.38000	PO	•	4006.5	TO	旦	2959.6	HO	==	.51000-01
SECTION (1 180DY				DEPENDE	NT VARIA	BLE H/HR	EF								
X/L	. 1700	.3000	.4000	.4250	.5000	.6000	.7000	.8250								
Z(NL) 375.000		.0028*	*****	0071		*****	.0005									
400.000 425.000		.0039	.0026	.0031	******	.0023	.0026	.0001								
465.000 501.000	.0225	.0065	.0018		.0018*	*****	8000.	,000;								
ALPHA (5)	= 10.0	000 H/	AW/HT(3)	*	1.000 R	N/L #	.38000	P0	M	4006.5	TO	=	2959.6	HO	24	.51000-01
SECTION (1180DY				DEPENDE	NT VARIA	ABLE H/HR	EF								
X/L	.1700	.3000	.4000	.4250	.5000	.6000	.7000	.8250								
Z(HL) 375.000		.0026*	*****	.0027		******	.0004									
400.000 425.000		.0034	.0023	.006	*******	.0020	.0023	.0001								
465.000 501.000	.0197	.0053	.0015		.0016•	*****	.0007									

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DATE 03 NOV 75

TABULATED SOURCE DATA - LACE N2-28 (1H19)

PAGE B1

1H19 B22C7F5M4V7W111 T8 ORBITER LOWER WING

(ROEHOS) (03 NOV 75)

REFERENCE DATA	Ą ·		FAI	MARKETITIO DVIN	1.5	
,, .	T			* * * * * * * * * * * * * * * * * * *		
	All income	anaa	DETA **	nna pN/4	×	

SREF = LREF = BREF = SCALE =	2690.0000 SQ.FT. 1290.3000 IN. 1290.3000 IN. .0060	XMRP ≈ YMRP = ZMRP ≈	.0000 .0000 .0000				BETA = BLTRIP = HACH =	.000 .000 19.200	RN/L =	. 175
ALPHA ()	D = -10.000 H	HAH/HT(1) =	.850 RN/L	× .36800	PO =	4011.B	TO =	3009.6	H0 ≈	.51000-01
SECTION	(1)WING		DEPENDENT	VARIABLE H/HREF						
2Y/B	.4000 .6000	.8000								
%/C .050 .100 .200	.0138 .0122 .0223 .0065 .0133	.0162								
.300 .400 .500 .600		.0100 .0058								
.800 .900	##EE#### .0014	.0046 = (S)TH/WAH	.900 RN/L	= . 36800	Po ×	+011.8	то	= 3009.6	Н0 =	.51000-01

ALPHA (1) = -10.000 HAWHT(2) = .900 RN/L = .35800 PO = 4011.8 TO = .51000-0

SECTION (1) HING DEPENDENT VARIABLE HYHREF

SA\B	.4000	.6000	.8000
X/C		•	
.050	.0128		
.100	.0114	.0207	
.200	.0061	.0123	.0150
.300	.0035	.0064	
.400	.0026	.0048	.0093
.500	.0022	.0039	
.600	.0019	.0033	. 0054
.700	.0017	.0031	
.800	.0015	.0024	.0043
. ann	****	.0013	

DATE 03 NOV 75	TABULATED	SOURCE DATA - LACR NE-28 (IH1	9)			•	7107 05
,		IH19 B28C7F5M4V7WIII T8 ORBI		D LUNG			PAGE 82
ALPHA (1) = -10 .	= (E)TH\HAH 000.	1.000 RN/L = .36800	PO		Of an	(ROEWO3)	
SECTION (11WING		DEPENDENT VARIABLE H/HREF		₩ 4011.8	TO	≈ 3009.6	HO = .51000-01
2Y/B .4000		SELENDEN TANTAGLE NYTREP					
X/C .050 .0112 .100 .0100 .200 .0053 .300 .0031 .400 .0019 .500 .0017 .700 .0015 .600 .0014 .900 *********	.0182 .0108 .0132 .0057 .0042 .0081 .0035 .0029 .0048 .0027 .0021 .0038	.850 RN/L ≈ .38200	P0	≖ 4022.3	το	= 2959. 5 ;	+0 ≈ .51000~01
SECTION (1)WING		DEPENDENT VARIABLE HYHREF					
2Y/B .4000	.6000 .0000						
X/C .050 .0089 .100 .0087 .200 .0054 .300 .0027 .400 .0021 .500 .0017 .600 .0013 .700 .0014 .800 .0012	.0193 .0134 .0175 .0070 .0045 .0112 .0035 .0065 .0033 .0065 .0020 .0048					· · · · · · · · · · · · · · · · · · ·	
ALPHA (2) = -5.0	= (S)TH\NAH 000	.900 RN/L = .38200	Po	= 4022.3	TO	× 2959.6 4	
SECTION (1)WING	,	DEPENDENT VARIABLE H/HREF	. •		10	= 2959.6 H	10-000-01
2Y/B .4000	.6000 .8000				•		
X/C .050 .0083 .100 .0081 .200 .0051 .300 .0025 .400 .0019 .500 .0018 .500 .0012 .700 .0013	.0179 .0125 .0163 .0065 .0042 .0104 .0033 .0061 .0026						•

PAGE TABULATED SOURCE DATA - LACR N2-28 (1H19) DATE 03 NOV 75 (ROEHOS) IHIS BEECTFSM4V7WIII TB ORBITER LOWER WING # (S)TH\IAH .900 ALPHA (2) = -5.000DEPENDENT VARIABLE H/HREF SECTION (1)HING .4000 .8000 8/YS .6000 .900 ****** .0018 .51000-01 4022.3 1.000 RN/L = .39200 ALPHA (2) * -5.000 HAW/HT(3) = DEPENDENT VARIABLE HIHREF SECTION (I)WING .5000 .8000 .4000 2Y/B X/C .0073 .0071 .100 .0157 .200 .0044 .0110 .0143 .300 .0022 .0057 .0037 .0052 .0017 .400 .0014 .500 .0027 .500 .0011 .0053 .700 .0011 .0016 .0039 .800 .0010 .900 ****** .0016 .51000-01 = 4065.2 .000 HAW/HT(1) = ALPHA (3) = DEPENDENT VARIABLE H/HREF SECTION (1) WING 2Y/B .4000 .6000 .8000 X/C .0101 .100 .0087 .0161 .200 .0055 .0112 .0207 .0039 .0083 .0037 .0132 .400 .0067

.500

208.

.700

.800

.0058

.0049

.0042

.0032

.0022

.0088

.0063

.0029

.0025

.0020

.900 *******

DATE 03 NOV 75 TABULATED	SOURCE DATA - LACR N2-28 (1HLS	3)			PAGE 84
	THIS BESCHESKYVALLE TB ORBIT	TER LOWER WING		(ROEHOS)	
ALPHA (3) × .000 HAWAHT(2) =	.900 RN/L = .36500	PO = 4056.2	70 =	3039.6 HŌ	± .51000-01
SECTION (1)WING	DEPENDENT VARIABLE H/HREF				
0008, 0008, 0008, 8175			*.		
X/C .050 .0094					÷
.100 .0081 .0150 .200 .0051 .0104 .0193		•			
.300 .0037 .0077 .400 .0034 .0063 .0123					
.500 .0032 .0054 .600 .0027 .0046 .0082			•		
.700 .6500 .0039 .6500 .0019 .0039 .0059					•
.1500.					
ALPHA(13) = .000 HAR/HT(13) =		PO = 4065.2	70 =	3039.6 110	= .51000-01
SECTION (1) HING	DEPENDENT VARIABLE H/HREF			Will state of the	•
2Y/B .4000 .6000 .8000					
X/C .050 .0083					
100 .0071 .0131 .200 .0045 .0091 .0169 .300 .0032 .0067					
.400 .0030 .0055 .0108					
.500 .0028 .0048 .500 .0023 .0040 .0072					
.700 .0020 .0035 .800 .0017 .0026 .0052					
.0018	050 CH4 - 7570C	PO = 4029.4	70 =	3039.5 HO	 51000-91
ALPHA (9) = 5,000 HAW/HT(1) =	.850 RN/L = .36200 DEPENDENT VARIABLE H/HREF	•	10 -	202210 110	. 1014
SECTION (1) HING 2400 .6000 .8000	DELEMBER! AND TABLE UNLINE.				
2Y/B .4000 .6000 .2000		•			
.,50 .0058 .100 .0055 .0126		· ·			
.200 .0035 .0092 .0180 .300 .0025 .0066					
.400 .003 .0056 .0123 .500 .0000 .0008				•	
.600 .0020 .0044 .0083 .700 .0017 .0044					
.800 .0016 .0033 .0065					

PAGE TABULATED SOURCE DATA - LACR N2-28 (IHI9) DATE D3 NOV 75 (ROEHO3) THIS BESCOFFMANTALLE TO ORBITER LOWER WING # (1)TH\WAH 5.000 ALPHA (4) = DEPENDENT VARIABLE HIMREF SECTION (1)HING .6000 . .8000 .4000 SA/B X/C - 51000-01 .900 ****** .0017 3039.6 HAW/HT(2)9 = 5.000 ALPHA (41 × DEPENDENT VARIABLE H/HREF SECTION (LIWING .8000 .6000 .4000 2Y/B X/C .0063 ,050 .0051 .0117 .100 .0168 .0085 .0032 .300 .0024 .0021 .0062 .0114 .0052 .400 .0044 .0018 .500 .0077 .0041 .0012 .600 .0041 700 .0016 .0060 .0015 .900 .0016 .51000-01 3039.5 4029.4 HAW/HT(3) = ALPHA (4) = 5.000 DEPENDENT VARIABLE HIHREF SECTION (1) WING .6000 .8000 .4000 2Y/B X/C .0055 .050 .0103 .100 .0045 .0147 .0075 1200: .200 00E. .0054 .0100 .0019 .0046 2403 .500 .500 .0016 "139

.0068

.0053

.0016

.0014

.0013

.800

.900

.0036 .0036

.0027

DATE 03 NOV 75	TABULATED S	SOURCE DATA - LACR N2-28 (1H19)			PAGE 85
	1	H19 822C7F5M4V7W111 T8 OR8IT	ER LOWER WING		(RQEWO3)	
ALPHA (5) = 10.0	00 HAW/HT(1) =	.850 RN/L = .36900	PO = 4927.6	то 🕶	3009.8 HO	# .510vû-d1
SECTION (1)WING		DEPENDENT VARIABLE H/HREF				
000 <i>0</i> . 8\YS	.6008. 0008.					
X/C .050 .0019 .100 .0020 .200 .0018 .300 .0018 .400 .0017 .500 .0015 .600 .0019 .700 .0015 .600 .0016	.0151 .0116 .0189 .0091 .0076 .0141 .0068 .0067 .0094 .0057 .0047 .0075					
ALPHA (5) = 10.0	* (2)TH\WAH 00	.900 RN/L = .35900	PO = 4027.6	TO =	3009.6 HO	= .51000-01
SECTION C DWING		DEPENDENT VARIABLE H/HREF				
000P. BVYS	.6000 .8000	•				
X/C	.0141 .0108 .0176 .0085 .0071 .0131 .0063 .0062 .0087 .0053 .0044 .0070					
ALPHA (5) = 10.0	000 HAW/HT (3) =	1.000 RN/L = .35900	PO = 4027.6	TO =	3009.6 HO	.51090-01
SECTION (1)HING	•	DEPENDENT VARIABLE HYHREF				
27/8 .4000	.6000 .8000					
7/C .050 .0016 .100 .0016 .200 .0014 .100 .0015 .455 .0014 .500 .0018 .600 .0016 .700 .0012 .800 .0013	.0123 .0095 .0154 .0074 .0062 .0115 .0055 .0054 .0076 .0047					·

DATE 03 NOV 75

TABULATED SOURCE DATA - LACR N2-28 (1H19)

THIS SEECTFSM4V7WIII TO ORBITER LOWER WING

(RQEHOS)

ALPHA (5) = 10.000 HAW/HT(3) = 1.000

SECTION (1)WING

DEPENDENT VARIABLE H/HREF

2Y/8

.4000

.6000 .8000

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88
                                                                                                                                                  PAGE
                                   TABULATED SOURCE DATA - LACE N2-28 (14:3)
DATE 03 NOV 75
                                                                                                                                            ( 03 NOV 75 )
                                                                                                                               (RQEWO4)
                                                IH19 B22C7F5M4V7W11' 18 ORBITER LOWER WING
                                                                                                                          PARAMETRIC DATA
                 REFERENCE DATA
                                                                                                                                                          .500
.175
                                                                                                                                .000
020.
                                                                                                                                        RN/L
                                                                                                              BETA
                                                   .0000.
0000.
          2690.0000 SQ.FT.
1290.3000 IN.
1290.3000 IN.
.0060
                                                                                                                                        DELTAH =
                                                                                                              BLTRIP =
                                   YMRP
                                                                                                                             19.800
LREF *
                                                                                                              MACH
                                   ZHRP
SCALE =
                                                                                                                                                         .51000-01
                                                                                                                              2959.6
                                                                                                    3992.5
                                                                                        PO
                                                                          .37900
                               HAN/HT( 1) =
ALPHA ( 1) = -10.000
                                                      DEPENDENT VARIABLE HIHREF
 SECTION ( 11HING
                                    .8000
               .4000
                          .6000
SY/B
   X/C
     .050
                .0140
                         .0176
                .0104
                .0055
.0043
.0037
.0027
.0021
                                    .0171
     .200
.300
.400
                          .0080
                          .0066
                                    .0104
      .500
                                    .0072
                          .0040
      .600
      .700
.800
                          .0041
                                    .0048
                .0018
                          .0035
      .900
            ***
                          . 1018
                                                                                                                                                           .51000-01
                                                                                                                                             HO
                                                                                                                               2959.6
                                                                                                                   TO
                                                                                                     3992.5
                                # (S ) THYWAH
 ALPHA ( 1) = -10.000
                                                       DEPENDENT VARIABLE HYHREF
  SECTION ( 1)WING
                                     .8000
                           .6000
 2Y/8
                 4000
    X/C
                .0130
.0097
.0060
       .050
                           .0164
       .100
                                     .0159
      .300
.300
.400
                           .0106
                 .0040
                           .0074
                          .0051
.0049
.0037
.0038
                                     .0097
                 .0034
.0025
.0019
       .500
.600
.700
.800
                                     .0067
                 .0020
                                      .0844
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	•				PAGE 89
DATE 03 NOV 75	TABULATED SOURCE DATA - LACE N2-28 (IHIS)		(RQEWOY)	. 11000
	1419 822C7F5M4V7W111 T8 0PCif		7A =		10-00018. = 044
WPULLY C. 11	MHT(3) = 1.000 RN/L = .37908 DEPENDENT VARIABLE H/HREF	PD ≈ 3992.5	70 =	200010	
SECTION (1) WING					
000a. 0004. BVYS	.8000				
X/C	.0140 .0085 .0058 .0039	pn * 4032.9	то ,	2969.6	HO = .51000-01
ALPHA (2) = -5.000 HA	W/HT(1) = .850 RN/L = .36000	10	, -		
SECTION (1)WING	DEPENDENT VARIABLE HIHREF	•			
0008. 0004. BVYS	.0000				
X/C .050 .0085 .100 .0068 .0150 .200 .0047 .0099 .300 .0032 .0066 .400 .0026 .0051 .500 .0025 .0043 .500 .0019 .0039 .700 .0018 .0035	.0193 .0103 .0067 .0048				
2500. 4100. 008.			то	= 2969.6	HO = .51000-01
ALPHA (2) = -5.000 H	00000. = 1N/N 900 RN/L = .39000	PO = 4032.9			
SECTION (1) WING	DEPENDENT VANIABLE HYHRE	F			
2201.5. 4000 .6000	.8000				
	•				
X/C .050 .0078 .100 .0054 .0140 .200 .0044 .0093 .300 .0030 .0062 .400 .0024 .0048 .500 .0023 .0040	.8095				
.600 .0018 .0036 200 .0017 .0033					
1200. 2100. 008.	•00 45				

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TABULATED SOURCE DATA - LACR N2-28 (1H19)
DATE 03 NOV 75
                                                                                                            (ROEWO4)
                                         THIS BEECTFSM4V7WIII TO ORBITER LOWER WING
                          ™ (S )TH\WAH
                                            .900
ALPHA ( 2) = -5.000
                                             DEPENDENT VARIABLE H/HREF
 SECTION ! INVING
                              .8000
             .4000
                      .6000
2Y/B
    .900 *******
                                                                                                                                 .51000-01
                                                                                                           2969.8
                          HAW/HT( 3) =
ALPHA ( 2) = -5.000
                                              DEPENDENT VARIABLE HIHREF
 SECTION ( 1)WING
                      .6000
                              .8000
             .4000
SAVB
  X/C
             ,0069
     .050
     .100
             .0056
                      .0123
                              .0149
             .0039
                      .0081
             .0026
                      .0054
     .400
.500
                      .0042
                               .0084
             .0021
              .0020
                      .0035
                               .0055
     .600
              .0016
     .700
                               .0040
              .0011
                      .0019
     .800
     .900
                      .0013
                                                                                                                                 .51000-01
                           HAH/HT( 1) =
 ALPHA ( 3) =
                   .000
                                              DEPENDENT VARIABLE H/HREF
  SECTION ( 1) WING
                      .6000
                               .8000
              .4000
 SY/B
   X/C
              .0078
      .050
      .100
              .0069
                               .0176
      .200
              .0047
                       .0104
              .0031
                               .0110
      .400
.500
                       .0044
                                .0068
      .600
.700
.800
                       .0032
              .0020
                                .0051
              .0018
```

.900

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PAGE

PAGE 91 **DATE 03 NOV 75** TABULATED SOURCE DATA - LACR NZ-28 (IHIS) (ROEHOW) IHIS BESCTFSMAVTWILL TO ORBITER LOVER HING .51000-01 3039.6 ₩ 4013.6 .36000 ALPHA (3) = .000 # (S)TH\WAH .900 RN/L SECTION (1) HING DEPENDENT VARIABLE HYHREF .4000 .8000 **8/**/8 .6000 X/C .050 .0073 .0064 .0148 .100 300 .0030 .0097 .0164 .0063 .400 .500 .600 .0053 .0103 .0022 .0041 .0019 .0042 .0064 .700 .0019 .0030 .0026 .0048 .800 .900 .0616 .51000-01 HO .36000 .000 HAW/HT(3) = 1.000 RN/L ALPHA (3) = DEPENDENT VARIABLE H/HREF SECTION (1)HING .4000 .6000 .8000 2Y/B X/C .050 .0064 .100 .005F .0130 .200 .300 .400 .0039 .0005 .0144 .0058 .0026 .0026 .0020 .0017 .0046 .0035 .0090 .500 .600 .700 .0037 .0056 .0026 .0015 .0023 .0042 .800 .900 ****** .0014 HO .51000-01 2969.6 4020.6 ALPHA (4) = 5.000 HAW/HT(1) = DEPENDENT VARIABLE HYPREF SECTION (17HING .6000 .8000 B/YS .4000 X/C .0056 .0045 .050 .100 .0126 .0091 .0059 .0052 .200 .300 .400 .0033 .0160 1500. .0111 .0018 .500 .600 .700 .0036 .0077 .0014 .0032 .808 .0014 .0035 .0054

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92
                                                                                                                              PAGE
                               TABULATED SOURCE DATA - LACR N2-28 (1H19)
DATE 03 NOV 75
                                                                                                              (ROEWOW)
                                          THIS BESCTFSMAVTHILL TO ORBITER LONER WING
                          ਜਜਜ/HT( 1) ★
                 5.060
ALPHA ( 4) =
                                              DEPENDENT VARIABLE HYHREF
 SECTION ( 17HING
                      .6000
                              .8000
B/YS
             .4000
  X/C
    .DD ******
                      .001E
                                                                                                                                    .51000-01
                                                                                                             2969.5
                                                                                   4020.3
                                                                .37500
                 5.000
                           HAM/HY( 2) =
ALPHA ( 4) =
                                              DEPENDENT VARIABLE H/HREF
 SECTION ( I)HING
                               .8000
             .4000
                      .8000
2Y/B
  X/C
             .0052
     .050
                      .0117
     .100
             .0042
                      .0084
                               .0149
     .200
             .0031
                      .0055
.0048
.0042
                               4010.
     .400
              .0019
     .500
.600
             .0017
                      .0033
              .0014
                               .0071
     .750
              .0013
                      .0032
                               .0050
              .0013
     .800
                      .0016
     .900 **
                                                                                                                                     .51000-01
                                                                                                                          ΗÖ
                                                                                                              2969.B
                                                                                                   10
                                             1.000 RN/L
                           HAR/HT( 3) =
 ALPHA ( 4) = 5.000
                                               DEPENDENT VARIABLE HANREF
  SECTION ( I)WING
                               0008.
 2Y/B
              .4000
                       .6000
   X/C
              .0046
              .0037
                       .0103
     .100
     .200
.300
400
                               .0131
                       .0074
              .0027
                       .0048
              .0017
                                .0091
              .0016
                       .0042
                       .0036
      .500
              .0015
                       .0029
                                .0063
      .600
.700
              .0013
              .0011
                       .0025
                       .0020
                                .004%
      .809
               .0011
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DATE D3 N	OY 75		TABULATE	D SOURCE DATA -	LACR N2-28 (1	HID				P,	AGE 93
				inte ezec7F5M	Y7HIII TO ORI	BITER LOW	er wing		(ROEHO4)		
ALPHA (5) = 10.	000 I	JAW/HT(1) ≈	.850 RN/I	36900	PO	3967.9	TO	= 2089. 6	но	× .51000-01
SECTION	CIMING			DEPENDENT	VARIABLE H/HRI	EF					
SANB	.4000	.6000	.8000								
X/C .050 .100 .200 .300 .400 .500 .600	.0019 .0014 .0014 .0015 .0017 .0018	.0133 .0101 .0081 .0073 .0082 .0055	-0164 -0115 -0886								
.900 .900	.0015	.0029	.0961								
ALPHA (5) = 10.	7 000	= (S)THYNA	.900 RN/L	≃ ,38900	PO	× 3957.9	TO	· 2989.6	Но	* .51000-01
SECT. NA	(1) HING			DEPENDENT	VARIABLE HIHRE	EF					
SA\B	.4000	.6000	.8000								
X/C .050 .100 .200	.0018 .0013 .0013	.0123 .0094 ,0075	.0152								
.409 .500 .600 .700	.0016 .0017 .0014 .0018	.0068 .0058 .0051 .0050	.0107 .0080 .0057								
.900	*****	.0027									
SECTION		א עטע	AW/HIL 31 =	1.000 RN/L	= .36905 VARIABLE H/HRE	PO	* 3967.9	10	* 2969.6	НО	≈ . 51600-01
SYVB	.4000	.6000	.8000		ALSO PRESIDENTE AREA INC.	••	•				
X/C .050 .100 .200 .300 .900 .500 .600	.0016 .0012 .0019 .0015	.0108 .0083 .0066 .0059 .8051	.0133 .0093 .0070					•			
.700 .800	.0015	.0036	.0050						·		

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PAGE

DATE 03 NOV 75

TABULATED SOURCE DATA - LACR N2-28 (1H19)

THIS BEECFF5M4V7HILL TO ORBITER LOWER WING

(RQEH04)

ALPHA (5) = 10.000

1.000 HAH/HT(3) ≈

SECTION (1)WING

DEPENDENT VARIABLE H/HREF

2Y/8

.4080 .6000 .8000

%X/C .900 ******* .0023

DATE 03 NOV 75	TABULATED	SOURCE DATA - LACR N2-28 (II	8197		٠ .		
DESCRIPT :	3.50	IH19 822C7F5M4V7W111 ORB	ITER LOWER WING		/BARITE		PAGE 95
REFERENCE SREF = 2690,0000 co.					OMBOR)		NOV 75 3
LREF = 1290.3000 th	YMRP =	.0000 .0000		BETA ==	PARAMETRIC		
BREF = 1290.3000 IN. SCALE = .0060	ZMRP	.0000		BLTRIP =	.000 .000	RN/L w MACH =	.50 <i>0</i> 19.800
ALPHA (1) = -10.000 SECTION (1)HING	HAW/HT() *	.850 RN/L = .39000	PO = 400B.3	TO =	= 2959. 6	НО	= .51000-01
000a. 000#.	•800n	DEPENDENT VARIABLE HYHREF	•				•21000-01
X/C	.0099 .0058 .0036						
ALPHA (I) = -10.000 H SECTION (1) WING	A4/HT(2) =	.900 RN/L = .38000	FO = 4008.3	70 B	2959.6		
X/C .050 .0048 .100 .0050 .0079 .0079 .0016 .0054 .0054 .0055 .0079 .300 .0016 .0054 .500 .0017 .0015 .500 .0013 .0020 .700 .0010 .0020 .0010 .0020 .0010 .0010	.0091 .0054 .0033	DEPENDENT VARIABLE H/HREF			LaJa .0	HO	≈ .51000-0:
•0010				•			

PAGE 96 TABULATED SOURCE DATA - LACR N2-28 (1H19) **DATE 03 NOV 75** (RQEH05) ORBITER LOWER WING 1H19 B22C7F5M4V7W111 .51000-01 HO 2959.6 4008.3 HAM/HT(3) = 1.000 RN/L = .38000 ALPHA (1) = -10.000 DEPENDENT VARIABLE HYHREF SECTION (I)WING .6000 .8000 2Y/8 .4000 X/C .050 .0042 .100 .0028 .0129 .200 .0022 .0069 .0080 .0014 .0039 .300 .400 .0030 .0047 .0013 .500 .0015 .0013 .500 .0029 .0017 .0012 .0009 .0018 .800 .0010 .0013 .0026 .900 ****** .0009 ≈ .51000-01 2959.6 Ю 4004.0 .38000 HAW/HT(I) = ALPHA (2) = -5.000 DEPENDENT VARIABLE H/HREF SECTION (1)WING SAVB .4000 .5000 .8000 X/C .050 .0061 .0174 .100 .0046 .0131 .200 .0037 .0094 .300 .0026 .0060 .0087 .400 .0026 .0050 .0028 .500 .0020 .0053 .600 .0022 .0032 .700 .0030 .0017 .0027 .0037 .800 .0012 900 4000044 .0015 .51000-01 HO 70 2959.6 **≖** .38090 PO 4004.8 ALPHA (2) = -5.000 HAWHT(2) = RN/L DEPENDENT VARIABLE HYHREF SECTION (1)WING .8000 **81YS** .4000 .6000 .050 .0057 .100 .0162 .0043 .0122 .200 .0035 .0055 .0024 .300 .0081 .0024 .0047 .400 .500 .0019 .0026

.0050

.0034

.0021

.0016

.0012

.600

.800

.0030

.0028

DATE 03 NOV 75 TABULATED SOURCE DATA - LACE N2-28 (1H19) PAGE IH19 B22C7F5M4V7H111 ORBITER LOHER WING (ROEHOS) ALPHA (2) = -5.000 000. = (S)TH\HAH SECTION (1) WING DEPENDENT VARIABLE HYHREF SANB 4000 .6000 .8000 .900 ****** .0014 ALPHA (2) = -5.000 HAM/HT(3) = 4004.8 SECTION (1)HING CEPENDENT VARIABLE H/HREF 2Y/B .4000 .6000 .8000 X/C .050 .0050 .100 .0038 .0142 .0031 .0021 .0021 .200 .0076 .0107 .300 .400 .500 .0049 .0041 .0071 .0023 .600 .0018 .0026 .0044 .700 .0014 .0024 -800 .0010 .0022 .0030 .900 ****** .0012 ALPHA (3) = . 800 HAW/HT(1) = RN/L 3039.6 -50000-01 SECTION (I)WING DEPENDENT VARIABLE HYHREF 0000.0000.000 .8000 X/C .050 .0131 .100 .0111 .0207 .200 .0068 .0120 .0168 .300 .0050 .0085 .0045 .0041 .0029 .400 .0075 .0100 .500 .0020 .500 .700 .800 .0068 .0045 .0028 .0037 .0052 .9000025

	DATE 03 NO	OV 75		TABULAT	TED	SOURCE D	ATA - L	ACR N	2-28 (1H1	91							PAGE	98	i i
						1419 855	C7F5M4V	7H111	ORB!	TER LOW	IER W	ING			(ROEHO5	3			
	ALPHA (3	; =	.000 1	(S)THYHA	22	.900	RNYL	=	.35000	PO	1,30	3982.0	70	*	3039.6	HO	141	.50000-01	[
	SECTION	1)HING				DEPE	NDENT V	ARĮABI	LE H/HREF										
	2Y/B	.4000	.6000	.8000								•							j.
	X/C .050 .100 .200	5510. 2010. 2000.	.0193	aero.	4					-			••						
	.300 .400 .500 .600	.0045 .0041 .0038 .0027	.0079 .0070 .0018 .0048 .0048	.0093 .0064															
	.900	3500.	.0039	.0049					- "					•					
	ALPHA (3) =	.000 1	ANI/HT(3)	=	1.000	BN/L	*	.35200	P0	30	3982.0	TO	20	3039.6	но	*	.50000-01	
·	SECTION	(1)41NG	-	4		DEPE	NDENT V	AR I ABI	E HYHREF		+		* .	•				. •	
	SA\B	.4000	.6000	.8000						•				-		÷			
	X/C	0107		. •															
	.050 .100 .200 .330	.0107 .0091 .0056 .0041	.0170 .0104 .0059	.0137										÷					
	.480 .500 .600 .700	.0036 .0033 .0024 .0023	.0061 .0016 .0042 .0037	.0082 .0056 .0043			•						· · · · · · · · · · · · · · · · · · ·					:	
	.900		.0020																
٠.	ALPHA (4) * 5	.000 1	HAW/HT(])	*	.850	RN/L	#	.36400	PQ	•	3975.0	. 10		3009.6	HÒ	4	.51000-01	13
	SECTION	DNING				DEPE	NDENT Y	ARIABI	E HYHREF										
	2Y/B	.4000	.6000	8000														* d	
	X/C .050 .:00 .200	.0237	.0201	.0206	•;		•					•							:
	.300 .400 500	.0084 .0070 .0362	.0104 .0091 .0039	.0139				*.											
	.500 .600 .700	.0058 .0059	.0059 .0059	.0093				•	•										
	.000	.0046	.0045	.0071		•													

DATE 03 NOV 75 TABULATED SOURCE DATA - LACR NZ-28 (1H19) DACE 99 IH19 B22C7F5H4V7W111 ORBITER LOWER WING (ROEWOS) ALPHA (4) = 5.000 HAH/HT[1] = .850 SECTION (1)HING DEPENDENT VARIABLE HIHREF ZY/B .4000 .6000 -8000 X/C .900 ****** .0026 ALPHA (4) = 5,000 HAW/HT! 21 = .900 RN/L = 36400 **3975.0** 70 3009.6 H .51000-01 SECTION (IIWING DEPENDENT VARIABLE HIPREF SA/B .4000 .5000 .8000 X/C .050 1550. +100 .0181 .0187 .200 .0113 .0140 .0192 .300 .0078 .0097 400 .0055 .0057 .0084 .0129 .500 .0035 .500 .0054 .0060 .0086 .0050 .0043 -700 6254 -800 .0042 .0065 .900 seesses .0024 ALPHA (4) = 5.000 HAH/HT(3) = 3009.6 HÖ .51000-01 SECTION (11MING DEPENDENT VARIABLE HAIREF 2Y/B .4000 .5000 .8000 X/C .050 .0199 -100 .0159 .0164 .200 .0099 .0123 .0168 .0085 .0074 .0032 .300 .0068 .0057 .400 .0113 .500 .0050 .500 .700 .0048 .0053 .0076 .0094 .0047 .800 .0038 .0037 .0056 .900

DATE 03 NO	∨ 7 5		TABUL	.ATED	SOURCE D	IATA - L	ACR 1	45-58 (1H	19)						PiOT	100
					1H19 822	C7F5M4V	7H11	OSB	ITER LO	HER HING			(ROEHDS	:>	PAGE	100
ALPHA (5)	= 10.	000 F	1 THYHAR] =	.850	RNZL	20	.38100	PO	8.110# a	τø	22 .	2959.5	, H0	_	#1000_0t
SECTION /	рянев				DEPE	NDENT V	ARIAE	SLE HYHRE	F			_	F353.0	310	**	.51000-01
EA/B	.4000	.6000	.8000													
X/C .100 .200 .300 .400 .500 .500 .700 .800	.0426 .0354 .0229 .0165 .0154 .0145 .0145	.0279 .0225 .0176 .0157 .0066 .0120 .0111 .0079	1950. 0050. 4410.							•			,			
ALPHA (5)			S JTHVHA) =	.900	RNVL	•	.38100	P0	4011.8	TO	•	2959.6	Ю	**	.51000-D1
SECTION (•				DEPE	NDENT VA	RIAB	LE HYHREF	•							•
2Y/B	.4000	.6000	.6000													
X/C .050 .100 .200 .300 .400 .500 .700 .800 .900 ***	.0397 .0329 .0213 .0154 .0143 .0135 .0112 .0107	.0260 .0209 .0163 .0163 .0061 .0103 .0073	.0271 .0186 .0134 .0102					•								
ALPHA (5)	± 10.0	100 HA	W/HT(3)	22	1.000	RN/L		38100	PO	= 4011.8	то	24	2250 0			
SECTION (1 JWING				DEPEN	DENT VAI		E H/HREF	•	. 101113	10	**	2959.6	HO ·	= ,	.51000-01
2Y/8	•4000	.6000	.8000								,	•			•	
X/C .050 .100 .209 .300 .400 .500 .500 .700	.0348 .0289 .0187 .0135 .0126 .0118 .0099	.0228 .0194 .0143 .0128 .0054 .0098 .0090	8550. 8110. 88100.			<u>:</u>									. *	

DATE 03 NOV 75

TABULATED SOURCE DATA - LACR N2-28 (1H19)

PAGE 101

1H19 B22C7F5M4V7H111

ORBITER LOWER WING

(ROFWOS)

ALPHA (5) # 10.000

HAW/HT: 3) =

1.000

SECTION (I)WING

DEPENDENT VARIABLE H/HREF

2Y/B

.4000 .6000

.8000

X/C

2500. ****** 008.

PAGE 10

			•	1419 822	C7F5M4*	V7W111 OR	SITER LO	WER WING	÷ ·	٠.	(ROEWO	S) (03 NOV 75)	esta Mile
	REFER	ENCE D	ATA		,	•	•			PA	RAMETRIC	DATA		
LREF = 12	90.0000 90.3000 90.3000 90.3000	IN.	XMRP * YMRP * ZMRP *	.0000 0000 .0000				•	BETA = BLTRIF =		.000	RN/L HACH		
ALPHA (1)	= -10.0	100 1	CI THYWAE	. 850	RN/L	= .3 6500	PO	= 4010.1	TO	124	3019.6	HO	⇒ . 5100 0- 0	1
SECTION (LIWING			DEPE	NDENT '	VARIABLE H/HR	EF			•				
SY/B	.4000	.6000	.8000				-	•						
X/C .050 .100 .200 .300 .400	.0036 .0027 .0021 .0020 .0016	.0138 .0074 .0049 .0037	.0056											
.600 .700 .800 .900	.0012 .0014 .0011 .0014	.0025 .0022 .0014 .0004	.0034	. .900	RN/L	 3650 0	PO	= 4010.1	TO		3019.8	110	51000-0	I
ALPHA (1)		JUU	HAMADI (C.)			VARIABLE H/HR					•			
SECTION (.4008	5000	.9000	ULFE	MACIEL	SMITTERS IN THE								
X/C .850 .100 .200 .300 .400 .500 .500 .700 .800	.0033 .0026 .0019 .0019 .0015 .0012 .0012 .0010	.0129 .0058 .0045 .0035 .0018 .0023 .0021	.0085 .0052 .0033											

:0019

.0013

.700

.800

.6031

.0029

.0021

.0037

103 PAGE TABULATED SOURCE DATA - LACR N2-28 (1H19) DATE 03 NOV 75 (ROEKOS) ORBITER LOWER WING [H19 B22C7F5M4V7W111 .51000-01 3019.8 ■ 4010.1 ALPHA (1) = -10.000 HAW/HT(3) = 1.000 DEPENDENT VARIABLE H/HREF SECTION (1)WING .5000 .8000 2Y/€ .4000 X/C .0029 .050 .0022 .0113 .100 .0074 .200 .300 .400 .0060 .0017 .0040 .0016 .0045 .00:3 .0030 .500 .600 .0010 .0018 .0009 .0020 .0029 .700 .0011 .0018 .0028 .0009 .0011 .800 .0010 .0003 .900 .51000-01 HAW/HT(1) = ALPHA (2) = -5.000DEPENDENT VARIABLE HYHREF SECTION (1) HING .4000 .6000 .8000 B/YS X/C .050 .0055 .100 .0043 .0098 .0135 .0035 .200 .0051 .0052 .0038 .300 .0024 .0021 .0087 .400 .500 .600 .0033 .0055 .001B .700 .0021 .0031 .0014 .0022 .0039 .800 .0000 900 = (S)THYHAH ALPHA (2) = -5.000 DEPENDENT VARIABLE H/HREF SECTION (1) WING .8000 **8175** .4000 .6000 X/C .050 .0053 .100 .0040 .0161 .200 :300 .0089 .0126 .0032 .0022 .0057 .0081 .0049 .400 .0020 .0038 .500 .600 .0015 .0051

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TABULATED SOURCE DATA - LACR N2-28 (1H19)
DATE 03 NOV 75
                                                                                                             (ROENOS)
                                                                    ORBITER LOWER WING
                                          1H19 B22C7F5M4Y7H111
                                             .900
                          # (S ) TH\WAH
ALPHA ( 2) = -5.000
                                              DEPENDENT VARIABLE H/HREF
 SECTION ( 1) WING
                              0003.
                      .6000
             .4000
8//8
  X/C
                      .0008
    .900 4644664
                                                                                                                                  .51066-01
                                                                                                          = 3019.5
                                                                                      3999.5
                                                     RN/L
                           HAM/HT1 31 =
ALPHA ( 2) * -5.000
                                              DEPENDENT VARIABLE H/HREF
 SECTION ( I)WING
                      .6000
                              .6000
              .4000
SA\B
   X/C
              .0046
     .050
                       .0141
     .100
              .0035
                               .0110
              .0028
                       .0078
     .200
.300
.400
                       .0050
                               .0071
              .0017
                       .0043
              .0013
.0015
                       .0031
     .500
     .600
.700
                       .0027
                               .0045
              .0017
                       .0025
                               .0032
                       .0018
              .0012
      .800
                       .0007
      .900
                                                                                                                                 10-00008. =
                                                                                                             3039.6
                                                                                       3966.2
                                                                .35600
                                                     RN/L
                            HAW/HT( 1) *
                   .000
 ALPHA ( 3) =
                                               DEPENDENT VARIABLE HYHREF
  SECTION ( I)WING
                                0008.
               .4000
                       .6000
 2Y/B
   X/C
              .0109
      .050
                       .0191
      .200
                                .0161
                       9118
               .0067
                       .0083
      .300
               .0045
                                .0097
                       .0067
      400
500
               .0039
               .0035
                       .0062
                        .0053
                                .0056
               .0030
      . ອັບປ
               .0025
                        .0040
      .700
      £500. 008.
                                .0048
                        .0036
                        .0020
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PAGE 104





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DATE 03 NOV 75	TABULATED SOURCE DATA - LACE N2-28	(1H13)		PAGE: 105
	IHI9 BESCTF544V7HIII	ORBITER LOHER WING	(ROEHOB)	
ALPHA (3) = .000 HAH	.3550 = 1,474 ± 1900 × 1900 × 1900	0 PO = 3966.2	TO = 3039.6 HO	19-0000ë, e
SECTION (1)HING	DEPENDENT VARIABLE HA	HREF		
2Y/B .4000 .6000	.8000			
		•		
.050 .0102	•			•
.100 .0089 .0177 .200 .0053 .0110	.0150		•	
.300 .0042 .0077 .400 .0036 .0063	.0090	¥		
.500 .0032 .0057 .500 .0028 .0050	.6061			
700 .0023 .0038 .800 .0021 .0033	. 0044			
2100. ****** 00B.	•			Manaa.As
ALPHA (3) = .000 HAS	WHTE 31 = 1.000 RN/L * .3560	00 PO = 3966.2	70 = 3039.6 HO	10-00002. =
SECTION (1) WING	DEPENDENT VARIABLE HA	'HREF		
0008. 0004. 4175	.9000			
0000 .0000	•			
.100 .0078 .0156	0.170			
.200 .0055 .0097 .300 .0037 .0058	.0132			
.400 .0032 .0055 .500 .8500 .0050	.0079			
.600 .0024 .0044	.0054			
.700 .200. 1503. 9500 .0019 .008.	.0039			
.900 ****** .0016				
ALPHA (4) = 5.000 HA	395. = JVNR 058. • (1) THYN	00 PO = 4018.8	TO # 2909.6 HO	# .52000-01
SECTION (I) HING	DEPENDENT VARIABLE H	/HREF		
2003. 000P. 8\YS	.0006			
X/C:		•		
.050 .0229 .100 .0109 .0203		•		
.200 .0127 .0149 .300 .0089 .0109	.0208			
.400 .0071 .0090	.0144			
.500 .0866 .069 .500 .0059 .006	.0099			
.700 .0057 .0059 .800 .0052 .0047	.0072			

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TABULAYED SOURCE DATA - LACK N2-28 (1H19)
DATE 03 NOV 75
                                                                                                                  (ROENOS)
                                                                       ORBITER LOHER HING
                                            IHI9 BESCTFSM4V7HIII
                                               .850
                            HAH/HT( 1) =
                  5.000
ALPHA ( 4) =
                                                DEPENDENT VARIABLE HITREF
 SECTION ( 1)HING
                       .6000
                                8000
21/B
              .4000
     .900 *******
                       .0030
                                                                                                                                         10-00052.
                                                       RN/L
                            MAH/HTE 21 .
                  5.000
ALPHA ( 4) =
                                                DEPENDENT VARIABLE HYHREF
 SECTION ( 1)WING
                                .0000
                       .6000
              .4000
 8175
   X/C
              .0213
     .050
      .100
               .0175
     .300
200
                       .0138
                                .6193
                       .0102
               .0083
     .400
.500
.600
                                .0134
               .0066
                        0054
                                .0092
               .0055
                        .0063
               .0053
                        .0055
      .700
                       0044
                                .0357
      SP00 .0093
               .0048
                                                                                                                                           52000-01
                                                                                                                  2909.8
                                                                                          4018.8
                             HAH/HT( 3) =
                   5.980
 ALPHA ( 4) =
                                                 DEPENDENT VARIABLE HARRES
  SECTION ( TIMING
                        .6000
                                 .8000
               .4000
 8179
    X/C
               .0167
      .050
      .100
.200
.300
.400
.500
.500
               .0154
                        .0165
                                 .0169
               .0103
                        .0121
               .0072
.0058
                        .0083
                         .0074
                                 .0117
               .0054
                         .0056
                                 0800.
                         .0055
                         .0048
               .0046
                         .0039
                                 .0059
       .000
               .8042
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PAGE 106

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DATE 03 NOV 75 TABULATED SOURCE DATA - LACE N2-28 (1H19) PAGE 107 THIS BEECTF SHIVTHITI ORBITER LOWER WING (ROEHOS) ALPHA (5) = 10.000 HAW/HT(1) = .850 RN/L = .38000 PO = 4005.5 2959.6 × .51000-01 SECTION (1) WING DEPENDENT VARIABLE HIHREF 2Y/B .4000 .6000 .8000 X/C .050 .0384 _ too .0327 .0271 .200 .300 .0226 .0219 .0282 10169 .0166 .400 .0146 .0150 .0189 .500 .0138 .0112 .600 .0118 .0112 ,0191 .700 .0110 0104 .800 .0097 .0097 .Diib .900 .0049 ALPHA (5) = 10.000 HAMMITT 21 1 .51000-01 SECTION t INHING DEPENDENT VARIABLE HAHREF 2778 .4000 .6000 .800D X/C .050 .0350 .030v .100 .200 .0210 .0204 .0262 .300 0154 .0157 .400 .0136 .0139 .0176 .500 .0128 .0105 .600 .0110 .0104 .0131 .700 .0103 .0097 .800 .0090 .0076 .0103 .900 .0046 ALPHA (5) = 10.000 00008. # JVNR .000.1 = (E)THVHAH .51000-01 SECTION (LINING DEPENDENT VARIABLE HARREF SA\8 .4000 .auco .8000 X/C .050 .0314 .0221 .100 .0267 .200 .0184 .0230 .0135 .300 .0138 .400 5510. .0154 .500 .0112 .0092 .600 .0097 1600. .0115 .700 .0090 .0085 .000 .0079 .0067 .0090

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DATE 03 NOV 75

TABULATED SOURCE DATA - LACE N2-28 (1H19)

PAGE 108

1H19 B22C7F5M4V7W111

ORBITER LOWER WING

(RQEMOS)

ALPHA (5) = 10.000 HAM/HT(3) = 1.000

SECTION (I)WING

DEPENDENT VARIABLE HYHREF

0008. 0000. SOOO .8000

X/C

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<u>_</u>.__.

DATE 03 NOV 75

TABULATED SOURCE DATA - LACE N2-29 (1H19)

PAGE 109

.51000-01

THIS BEECTF5M4V7W111 TB EXTERNAL TANK

(RQET01) (03 NOV 75)

PARAMETRIC DATA

2959.6

Fredrick Spritters (1946) beginning to be filled beginning between

REFERENCE DATA

SREF = 2690.0000 SQ.FT. LREF = 1290.3000 IN. BREF = 1290.3000 IN. SCALE = .0050 .0000 **PETA** RN/L YMPP = .0000 BLTRIP = .030 DELTAH = .175 ZMRF + .0000 19.800 ALPHA (1) = -10.000HAW/HT(1) =

SECTION (1) TANK DEPENDENT VARIABLE HIHREF

PHI .0000 45.0000 67.5000 90.0000112.5000135.0000157.5000180.0000

X/L .000 .005 .010 .020 .040 .060 .080 .100 .125 .150				.2111				.2111 .1682 .1489 .0861 .0662 .0392 .0392
.200 .250				.0062				.0152 .0120
.300			.0024	.0000	.0047		40	.0073
.325 .350 .375 .400	.0005	0015	.0021	.0034	.0040	.0056 .0050 .0045 .0040	.0179	.0058 .0250 .0456
.425 .450 .475						.0093	.0246	.0293
.500 .525 .550			.0015	.0022	.0050	.0133	.0189	.0145 .0136 .0131
.575						.0163	.0167	.0118
.600 .625	-0008	• •	.0021	.0027	.0058	.0100	.0091	.0104
.650 .675	•		.0015			.0077*	*****	.0103 2000. 1800.
.700 .750			.0016 .0016	.0026	.0048	.0066 .0051	.0059 .0054	.0074
.800 .850	.0007	.0005	.0015	.0025	.0046	.0048 .0036	.0033	.0029
.900 .935			.0014	.0023	.0031	.0025	.0027	.0015 .0008 .0001
.974								****

PAGE 110 TABULATED SOURCE DATA - LACR N2-28 (1H19) DATE 03 NOV 75

- IH19 B22C7F5M4V7W111 T9 EXTERNAL TANK

(RQETO1)

.51000-01 ALPHA (1) = -10.000 HAH/HT(2) = 2959.6 .900 RN/L = .38200

SECTION (1) TANK DEPENDENT VARIABLE HYHREF .0000 45.0000 67.5000 90.0000112.5000135.0000157.5000180.0000 PHI X/L

.000 .005 .010 .020 .040 .060 .080 .100				. 1958			* 4	.1958 .1961 .1381 .0942 .0800 .0516 .0355 .0001 .0176
.175 .200		-		.0058				.0112
.250 .300			.0022	.0000	.0044		9.0	.0068
.325 .350 .375 .400	.0008	.0014	.0020	.0031	.0037	.0052 .0047 .0042 .0037	.0165	.0054 .0233 .0424
.425 .459						.0087	.0229	.0273 .0183
.475 .500		-	.0014	.0020	.0046	.0124	.0176	.0135
.525 .550 .575						.0114	.0118	.0127 .0122 .0110
.600	.0007		.0020	.0025	.0054	.0093	.0084	.0097
.625 .650 .675			.0015			.0071**	*****	.0096 .0086 .0075
.700 .750			.0015 .0015	.0024	.0045	.0061 .0047	.0055 .0050	.0059
.800 .850	.0006	.0005	.0014	.0023	.0043	.0045 .0033	.0031 .0025	.0027 .0014
.900 .935			.0013	.0021	.0029	.0023	.0009	.0007

REPRODUCIBILITY OF THE ORIGINAL PAGE IS POOR

PAGE 111

.51000-01

DATE 03 NOV	75		TABULA		CE DATA -								
				1H19	B22C7F5N	14V7WI I I	TB EXT	ERNAL TAN	iK			(ROETO1)	
ALPHA (1)	= −10.8 0	OO HA	W/HT(3)	= 1.6	000 RN/	'L #	.38200	P0	= 4029.4	70	=	2959.6	HO
SECTION (LITANK			1	DEPENDENT	VARIAE	LE H/HRE	F		Jan.			
			= =000 0		2.5000135								
PHi	.0000 4:	2.0000 0	7.5000 8	0.0000111	E+2000194	,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,						
X/L .005 .010 .020 .040 .060 .080 .105 .125 .150 .250			2010	.0051	.0039		41	.1710 .1364 .1208 .0825 .0701 .0540 .0540 .0311 .0001 .0154 .0124 .0098			٠		
.300 .325 .350 .375 .400 .425	.0007	.0012	.0019	.0080	.0033	.0045 .0041 .0038 .0032	.0146 .0201	.0048 .0204 .0372 .0240 .0160					
.450 .475 .500 .525 .550			.0012	.0018	.0041	.0109	.0154	.0118 .0111 .0107 .0096					
.575 .600 .625 .650	.0006		.0017	.0022	.0047	.0081 .0063•	.0074	.0085 .0084 .0076 .0066					
.675 .700 .750 .800 .850 .900	.0005	.0004	.0013 .0013 .0012	.0021 .0020 .0019	.0040 .0038 .0025	.0054 .0042 .0039 .0029	.0048 .0654 .8027 .0022 .0008	.0061 .0044 .0024 .0012 .0006					
.974							•	44444					

PAGE 112 TABULATED SOURCE DATA - LACR N2-28 (1H19) **DATE 03 NOV 75** (RQETO1) IH19 822C7F5M4V7W111 TO EXTERNAL TANK .51000-01 2929.6 **= 4031.1** a .39100 RN/L ALPHA (2) = ~5.000 HAM/HT(I) ≃ DEPENDENT VARIABLE H/HREF SECTION (1) TANK .0000 45.0000 67.5000 90.0000112.5000135.0000157.5000180.0000 PHI X/L . 1924 . 1924 .000 .1433 .005 .1207 .0793 .920 .0664 .040 .0491 .050 Q 0 5 C F .080 .0270 .100 .0002 125 .0133 .0109 .0082 .0061250 .0047 .0005 .0038 esoo. 300 .0033 .325 .350 .0035 .0041 .0184 .375 .0121 .0312 .0029 .0029 .0020 .0021 .0024 .0027 400 .0225 .425 .0055 .0150 .0:85 .450

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PAGE 113 **DATE 03 NOV 75** TABULATED SOURCE DATA - LACR N2-28 (1H19) IHI9 B22C7F5M4V7W111 TB EXTERNAL TANK (RQETO1) .51000-01 ALPHA (2) = -5.000 HAW/HT(2) = a .39100 4031.1 8929.6 SECTION (1) TANK DEPENDENT VARIABLE H/HREF PHI .0000 45.0000 67.5000 90.0000112.5000135.0000157.5000180.0000 X/L .000 . 1785 .1785 .005 .1331 .010 .020 .0737 .040 .050 .080 .0617 .0456 .100 .0252 . 125 . 150 .0002 .0124 .175 .0102 .250 .350 .350 .350 .375 .0057 .0076 4000 .0027 .0005 .0034 .0044 .0031 .0032 .0038 .0172 .400 .0019 .0022 .0025 .0027 .0027 .0113 .0019 1620. .425 .450 .0209 .0172 .0052 .0140 .475 500 .0015 .0018 .0033 .0082 .0133 .0099 .525 .550 .575 .0093 .0092 .0085 .0081 .600 .625 .0008 .0017 .0039 .0064 .0024 .0078 .0065 .0056

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以在1次1次的EBS等用品等主要的各种等

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PAGE 115 TABULATED SOURCE DATA - LACR N2-28 (1H19) DATE B3 NOV 75 (RQETOI) THIS BEECTF5M4V7WIII TO EXTERNAL TANK .51000-01 2909.6 3978.5 TO .39100 .000 RN/L HAH/HT(1) =.850 ALPHA (3) = DEPENDENT VARIABLE H/HREF SECTION (1) TANK .0000 45.0000 67.5000 90.0000112.5000135.0000157.5000180.0000 PHI X/L .1910 .1910 .000 .1263 .005 .1005 010. .0645 .0543 .040 .0405 .060080 .0223 .100 .0002 . 125 . 150 . 175 .0098 .0078 .0058 .0059 .200 .250 .300 .325 .350 **** .0031 .0031 .0001 .0030 .0027 .0028 .0023 .0020 .0135 .0017 .0077 .0211 .0022 .400 .0028 .0025 .0024 .0026 .0149 .425 .450 .0125 .0091 .0031 .475 .500 .525 .5500069 .0019 .0016 .0020 .0058 .0096 .0061 .0083 .0064 .0048 .0038 .0035 .0033 .0030 .0055 .0014 .0013 .0022 .0022 .625 .650 .675 .0002 .0036 .0013 .0010 .0011 .0012 .0006 .0014 .0029 .0029 .700 .750 .0009 .0004 .0019 .0014 .0012 .0002****** .800 .0015 .0012 .0017 .0014 .0018 .0002****** .0008

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				•											PAGE	116
	DATE OF NOV	75		TABULA	TED SOUR	CE DATA	- LACR	NS-58	(1818)							
					1419	822C7F5	M4V7H1	11 TB	EXTERNAL 1	ANK			(ROETO1)			•
										#	3978.5	TO	2909.6	HO	•	.51000-01
	ALPHA (3)	THE .	.000	(S) TH\WAH		900 RN	/L =	.391	gg Po		2910.5		541			
	SECTION (1) TANK				DEPENDEN										
	PHI	±000C	45.00	000 67.5000 9	D.000011	2.508013	5.0000	157.50	00180.0000							
	X/L .000				.1773				.1773							
	.005				•				.1173 .0935							
	.010	• .		* .				i	.0500							
	.020 .040								.0505							
	.050	**							.0376							
٠.	.080 .100	1							8050.							
	.100								.0002							
	. 125 . 150		-						.0091							
	. 175		•			•			.0073 .0054							
	.200				.0055				4440444							
	.250 .300		٠.	.0028	.0001	.0028	ഹവയ	=	.0029							

2500. 2500. 9100. 2100. 325 350 375 400 425 450 .0026 .0125 .0135 .0139 .0084 .0057 .0045 .0045 .0035 .0031 .0020 .0010 .0071 1900. .0023 .0022 .9025 .0026 .0117 .0029 .475 .500 .525 .550 .575 .500 .0089 .0015 .0054 .0018 .0018 .0060 .0059 .0033 .0052 .0028 .0012 .0013 .0020 .0002 .0033 20009 .650 .675 .700 .750 .800 .850 .935 .974 .0027 .0018 .0011 .0008 .0012 .0003 .0002* .0008 .0013 .0016 .0027 .0013 .6917 .0013 .0011 .00140000 .00:2 .0008 .0017

DATE 03 NO	V 75		LUBAT	ATED SO	URCE DATA	- LACR	NS-58 (1	K19)							PAGE	117
				111	19 822075	5M4V7Wi 1	1 TB EX	TERNAL T	ANK				(ROETOI)			
ALPHA (3)	2	.000	HAM/HT(3			N/L =	.39100	PO		3978.5	TO	•	2909.6	НО		6*000_0t
SECTION (11TANK				DEBENDE	NT VADIA	BLE H/HA			00.0.0		_	6203.0	NU	-	.5:000-81
PHI	. 222	us one	10 67 6000 ·	60 000 0												
X/L	10000	.0120	0 67.5000	30.0000	ועטטפישוו	35.00001	57.50001	80.0000								
.050				. 1550				1850								
.905								.1550 .1027								
.010 .020								.0819								
.040								.0526					•			
.060								.0443 nzzn								
.080 .19 0								.0330								
. 125								.0182								
. 150								.0001 0800								
.175								.0064								
.200 .250				.0049				.0047								
.300			.0025	.0001	0025		•	.0026								
•325					5523	.0022		.0020								
.350 .375						.0019		.0023								
.480	.0022	.002	0 .0020	.0022	.0018	.0016 .0014	.0053	.0110 .0172								
.425					12010	.0017	.0003	.0122								
.458 .975						.0026	.0102	.0074								
.500	-		.0015	.0013	.0016	.0047		9694636								
.500 .525			10010	.0013	*0010	.0047	.0078	.0057 .0050								
.550 .575						.0052	.0053	.0039								
.500	.0018		.0012	.0011	0026	60.0		.0031								
.525			*0015	.0011	.0025	.0045	.0029	.0027 .0018								Pa,
.650 .675			.0008			.0029	.0001	.0011								
.700			.0007	.0011	0071	222.	8010	.0009								
. 750			.0012	.0011	.0024	.0024 .0016	.0002	.0005 .0003								
.800 .850 .900	.0012	.001	0 .0014	.0011	.0015	.0010	.0002**									
.020			.0015	.0007	0010	.0007	.0002**									
.935			.0019	. 0007	.0010	.0002**	******	.0000								
.974							- '	.0001								

(ROSTO)) 1H19 B22C7F5M4V7H111 TB EXTERNAL TANK · .52000-01 PO - 4017.1 TO 2989.6 HO ALPHA (4) = 5.000 HAH/HT(1) = .850 RN/L = .39500 SECTION (1) TANK DEPENDENT VARIABLE HIHREF .0000 45.0000 67.5000 90.0000112.5000135.0000157.5000180.0000 PHI X/L .000 .1766 .1765 .1113 .005 .010 .020 .0535 .040 .0444 .050 .0327 .080 . 100 .0165 . 125150 .0070 175 .0055 .0057 .0041 .250 .300 .325 .0023 .0032 .0002 .0027 .0023 .350 .375 .400 .0020 .0025 .0110 .0011 .0059 .9041 .0034 .0031 .0027 .0021 .0014 .0124 .425 .007P

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PAGE 119 TABULATED SOURCE DATA - LACR N2-28 (1H19) DATE 03 NOV 75 (RQETOI) 1H19 B22C7F5M4V7W111 T8 EXTERNAL TANK .52000-01 HO 2989.8 TO = 4017.1 · .39500 PO RN/L # (S) TH\WAH 5.000 ALPHA (4) * DEPENDENT VARIABLE HYHREF SECTION (1) TANK .0000 45.0000 67.5000 90.0000112.5000135.0000157.5000180.0000 PHI X/L .1637 .000 .1032 .005 .0798 .010 .0497 .020 .0412 .0303 .060 .0B0 .0154 . 125 .0065 .150 .0051 .175 .200 .250 .300 .325 .350 .375 .0038 .00530022 .0025 .0002 .0030 .0021 .0023 .0018 .0102 .0011 .0115 .0055 .0019 .0013 .0025 .0038 .0032 **esoo**. .425 .450 .475 .0073 .0055 .00220030 .0055 .0036 .0009 .0025 .0016 .500 .0028 .525 .0020 .0029 .0045 .550 .575 .0011 .0008 .0014. .0020 .0033 .0013 .0025 .600 .625 .0037 .0003 .0001 .0023***** .0023 .650675 .7000014 .0003** .0020 .0015 .0017 .0002 .0008****** .001B .0010 .0003 .750 .0000 .0015 .0014 .0019 .800 .850 .0025 .0034 .0000 .0001 .0001 .0007 .0008 .8013 .0013 .900 .0001 .935 .974

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														'	NUL	
				IHI	9 B22C7F	5M4V7W1 I	1 T8 E	XTERNAL	TANK				(RQETO1)			
ALPHA (4)	- 5.	000	HAW/HT(3	3 = 1	.000 Ri	N/L =	.39500	PO	19	4017.1	TO	-	2909.6	HO		.52000-01
SECTION (LITANK				DEPENDE	NT VARIA	BLE H/F	REF								
PHI	.0000	45.0000	67.5000	90.00001	12.50001	35.00001	57.5000	180.000	0							
X/L									•							
.000 .005				.1428				. 1426				•				
.010								.0908								
.020								.043								
. 648								.036								
.050								. 0265	j							
.080 .100								*******								
. 125		•						.0135								
. 150								.0057								
. 175								. 0045								
.200 .250				.0046				.0033								
.200			.0026	ດກຸດຕ	0077			******								
. 325			.0050	.0002	.0022	.0018		.0019	3							
.350 .375						.0016		.0020	1							
.375						.0009		.0090								
.400	.0033	.0028	.0025	.0022	.0017	.0011	.0048	.0101						•		
.425 .450							2024	.0084			+					
.475						.0019	.0054	2480. ******								
.475 .500			.0022	.0014	.000B	.0032	.0049									
.525								.0025								
.550 .575						.0039	.0025	.0017	,							
.600	.0032		.0022	.0011	.0017	ดกรา	0017	.0010	i							
.625	- 0000			.0011	.0017	.0029	.0013	.0007								
.650			.0020			.00200		.0001								
.875								*****								
.700 .750			.0015	.0013	.0018	.0012	.0002									
.800	.0030	.0022	.0018 .0017	.0012	.0013		*****	.0002								
.850	- 4 2 2 3			.0015	,0013	.0009 .0004•	2000.	0000.	 							
.900 .935			.0011	.0012	.0006	.0007	.0001	.0001								
.935								.0001								
.974								.0002								



DATE 03 NOV 75

TABULATED SOURCE DATA - LACR N2-28 (1H19)

PAGE 121

1H19 B22C7F5M4V7W111 TB EXTERNAL TANK

(RQET02) (03 NOV 75)

REFERENCE DATA

PARAMETRIC DATA

	••••						LAUWIS INTO	DATA	
SREF = 2690.0000 SQ.FT. LREF = 1290.3000 IN. BREF = 1290.3000 IN. SCALE = .0060	XMRP = YMRP = ZMRP =	.0000 .0000 .0000				BETA = BLTRIP = MACH =	.000 .000 19.800	RN/L = DELTAH ≠	.500 .175
	- (1) TH\HAI	.850 RN/L		. •	3999.5	TO	= 2939.6	H0 ≈	.51000-01
SECTION (1) TANK		DEPENDENT	VARIABLE HIHRE	F					
PHI .0000 45.0000	67.5000 90.000	01:2.5000135	.0000157.500018	0.0000				·	
X/L .000 .005 .010 .026 .040	.210	a		.2100 .1677 .1466 .1005 .0854					

						•	.1005 .0854 .0657
							.0001
						•	.0200 .0157
			.0067				.0131
		.0027	.0002	.0049		• •	.0075
					.0056 .0019		.0062
.0017	.0017	.0024	.0637	.0040		.0175	.0261 .0487
•							.0302
					.0095	.0253	.0182 .0040
		.0019	.0021	.0051	.0138	.0184	.0154 .0154
					.0128	.0134	.0122
.0008		.0015	.0031	.0057	.0096	.0102	.0126 .0115 .0113
		.0013			.0075	.0069	.0099
		.0018 .0016	.0025	.0048	.0064 .0053	.0059 .0053	.0076 .0054
.0009	.0008	.0017	.0025	.0042	.0048	.0029	.0033
		.0014	.0025	.0035	.0026	.0010	.0003 .0003
	.0008	•0008	.0019 .0008 .0015 .0013 .0018 .0016 .0017	.0027 .0002 .0017 .0017 .0024 .0037 .0019 .0021 .0015 .0031 .0013 .0018 .0025 .0016 .0025	.0027 .0002 .0049 .0017 .0017 .0024 .0037 .0040 .0019 .0021 .0051 .0008 .0015 .0031 .0057 .0013 .0018 .0025 .0048 .0019 .0025 .0048	.0027 .0002 .0049 .0019 .0019 .0019 .0019 .0019 .0021 .0040 .0039 .0095 .0095 .0095 .0019 .0021 .0051 .0138 .0128 .0015 .0015 .0031 .0057 .0096 .0013 .0057 .0096 .0013 .0057 .0096 .0016 .0016 .0016 .0016 .0016 .0016 .0016 .0016 .0016 .0016 .0016 .0016 .0017 .0025 .0042 .0048 .0043 .0037	.0027 .0002 .0049 .0056 .0019 .0019 .0019 .0019 .0024 .0037 .0040 .0039 .0175 .0095 .0253 .0019 .0019 .0021 .0051 .0138 .0184 .0128 .0134 .0008 .0015 .0031 .0057 .0096 .0102 .0013 .0015 .0015 .0016 .0059 .0059 .0059 .0016 .0016 .0025 .0042 .0059 .0053

PAGE 122

				IHI	9 822C7F	5M4V7W11	1 T8	EXTERNAL	TANK				(RQETO2	!)		
ALPHA (1)	= -10.0	100 F	IAW/HT(2:) w	.900 Ri	4/L =	.3850	10 PO	13	3999.5	TO	=	2939.6	НО	8	.51000-01
SECTION (DTANK				DEPENDE	NT VARIA	BLE H/	HREF								
PHI	.0000 4	5.0000	67.5000 9	90.00001	12.50001	35.00001	57.500	0180.000								
X/L																
.000 .005				.1949				. 1949								
.010								1557 . 1 362								
.020 .040								.0934							,	
.060								.0794 .061 l								
.080 .100																
. 125								.0374								
.150								.0186	,							
. 175 . 200				.0062				.0146 .0122								
.200 .250 .300 .325 .350			2005		001.0			******								
.325			.0025	.0001	.0045	.0053	•	.0070								
. 350					_	.0017		.0058								
.375 .400	.0015	.0016	.0023	.0034	.0037	.0036	.016	.0243 0453 .0453			•					
.425								.0291								
.450 .475						.0088	.023	0169. 05 0035.								
.500 .525			.0018	.0020	.0048	.0129	.017	0143. 143. 143. 0132.								
.550						.0119	.018									
.575	.0008		00111	0000	0057	0000	000	.0118								
.600 .625	.0000		.0014	.0029	.0053	.0090	.009	0107. 0105.								
.650			.0012			.0070	.006	5 .0092								
675 700			.0017	.0023	.0045	.0059	.005	7700. 15001.								
.750 .800	.0008	.0007	.0015 .0016	.0023	.0039	.0049 .0045	.005	C .0051								
.850	.0000	.0007				.0034	.002									
.900 .935			.0013	.0023	.0033	.0024	.001	.0007 .0003								
.974								.0003								

PAGE 123

.51000-01

DATE D3 NO	OV 75		TABU	LATED SOI	URCE DATA	A'~ LACR	N2-2B (tera)						
								KTERNAL TA						
ALPHA (1:	nt = (000 :	HAW/HT(3					KIEHNAL TA	NF.				(RQETO2))
			THYMAE	5) =	1.000 F	₹N/L =	.38500	PO	= 3999	9.5	TO	car	2939.6	HO
SECTION	DITANK				DEPENDE	NT VARIA	ABLE H/HP	REF						_
PHI	.0000	45.0000	67.5000	90.0000			157.50001							
X/L			•			33.0000	:37.30001	80.0000						
.000 .005 .010 .020 .040 .060 .080 .100 .125 .155				.1703			•	.1703 .1361 .1192 .0818 .0696 .0536 .0536 .0329 .0001 .0163			y			
.250				.0054				.0107						
.300 .325 .350			-0022	1000.	.0040	.0046		1800.						
.375		_				#100.		.0051 .0213						
.400 .425	.0014	.0014	.0020	.0030	.0033	.0032	.0143	.0398						
.450 .475 .500			.0016	.0618	.0042	.0078	.0207	.0247 .0149 .0029						
.525 .550			.00.0	*0018	. טטאב	.0113	.0150	.0126 .0116						
.575						.0105	.0110	.0100						
.600 .625 .650	.0007		.0012	.0025	.0046	.0079	.0084	.0103 .0094 .0092						
.675			.0011			.0061	.0057	.0081						
.700 .750 .800	.0007	.0006	.0015 .0013 .0014	.0020	.0039	.0052	.0049	.0068 .0062 .0045					•	
.850 .900 .935 .974			.0011	.0020	.0034	.0030 .0030 1900.	.0023 .0019 .0008	.0027 .0016 .0006 .0003 .0001						

HI9 822C7F5M4V7HIII	T8	EXTERNAL	TANK
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(ROETOR)

				****	2 02561	TIMA MILI	I 10 EXI	ERIVAL I	4IVK				(ROE (UZ)			
ALPHA (S)	× -5.0	000	HAW/HT (]) =	.850 R	N/L =	.39000	PO	-	3994.3	TO	12	2919.6	но	*	.51000-01
SECTION (IITANK				DEPENDE	NT VARIA	BLE H/HRE	F								
PHI	.0000	+5.0000	67.5000	90.00001	12.50001	35.00001	57.500018	0.0000								
X/L																
.000				.2057		•		2057		-						
.005 .010								. 1504								
020								. 1247								
.040								.083 5 .0696								
.080								.0510								
.080 .100							0 +	44444								
.125								.0291 .0001								
. 150								.0138					•			
.175 .200				0001				.0107								
.250				.0061			• •	.0084								
.300			.0026	.0001	.0035			.0049					-			
325 .350						.0036										
.375					4.1	.0024		.0038 .0178								
.400	.0016	.0020	.0024	.0030	.0028	.0034	.0107	.0328								
.425 .450								.0231								
.475						.0051	.0177	.0136								
.500			.0016	.0020	.0036	.0084	.0143	.0118								
.525 .55 0						0000		.0111					•			
575						.0089	.0112	.0101 .0089								
.600	.0009		- 00 14	.0023	.0041	.0078	.0057	.0074								
.625 .C30			0010					9061								
.675			.0018			.0067	.0051	.0053 .0048								
.700			.0020	.0026	.0041	.0051	.0035	.0035								
.750 .800	.0009	.0012	.0020 .0017	nea.	0070	.0036	.0026	.0020								
.850	.0005	.0012	.0017	, 088 s	.0039	.0032 .0022	.0012 .0005	.0007 .0003					•			
.900			.0013	.0618	.0025	.0012					•		-			
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TABULATED SOURCE DATA - LACR N2-28 (1H19) DATE 03 NOV 75 (ROETOR) IH19 B22C7F5M4V7W111 TO EXTERNAL TANK .51000-01 ΚĐ 2919.6 TO **3994.3** PO RN/L = .39000 .906 # (S) TH/WAH -5.000 # (S) AHPJA DEPENDENT VARIABLE H/HREF SECTION (DITANK .0000 45.0000 67.5000 90.0000112.5000135.0000157.5000180.0000 PHI .1909 X/L .1909 .1397 .000 . 1159 .005 .0777 .010 .0647 .020 .0475 .040060 .0271 .080 .0001 .100 .0129 . 125 .0100 .150 .175 .0078 .0057200 .0045 .250 .0034 .0001 .0024 .300 .0034 .0035 .325 .0021 .0166 .3500306 .375 .0031 .0100 .0026 .0028 .0022 .0015 .0019 .0215 .400 .425 .0165 .0127 .0047 .450 .0110 .0134 .475 .0078 .0033 .0019 .0015 .500 .0103 .525 .550 .575 .0094 .0104 .0083 .0083 .0062 .0069 .0072 .0038 .0021 .0008 .0013 .0057 .630 .625 .650 .675 .0047 .0049 .0062 .0017 .0045 .0033 .0033 .0047 .0038 .0019 .0025 .0025 .0018 .700 .0033 .0019 .0006 .750 .0011 .0030 .0035 .0020 .0016 .0011 .0008 .0003 .800 .0005 .0020 .0002****** .850 .0023 .0011 .0017 .0012 .0004 .900

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PAGE 127 TABULATED SOURCE DATA - LACR N2-28 (IH19) DATE 03 199 75 (ROETO2) IH19 B22C7F5M4V7W111 TB EXTERNAL TANK .510000-01 2909.6 TO 3996.0 - .39300 ALPHA (3) = .000 HAW/HT(1) = .850 RN/L DEPENDENT VARIABLE HYHREF SECTION (1) TANK .0000 45.0000 67.5000 90.0000112.5000135.0000157.5000180.0000 FHS X/L .2035 .000 .2035 .1365 .005 .1084 .010 .0694 .020 .0584 .050 .0444 .080 .0228 .100 .125 .150 .175 .0003 .0105 .0080 .200 .250 .300 .325 .0063 .0061 .0029 .0029 .OG4: ******* .0029 .00240142 .375 .400 .425 .0025 .0027 .0028 .0022 .0016 .0083 .0228 .0027 .0168 .450 .475 .500 .525 .550 .0038 .0129 .0088 .0107 .0078 .0022 .0060 .0023 .0018 .0068 .0072 .0055 .0067 .0042 .625 .625 .650 .675 .700 .0064 .0043 .0039 .0021 .0033 .0019 .0019 .0039 .0941 .0021 .0016 .0043 .0011 .0033 es00. .0015 .0002 .0016 .0022 .0033 .0003 .0005 .0015 .0001

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				IHI	5M4V7W11	TANK (ROETO2)										
ALPHA (3)	=	.000	HAM/HT(2) =	.900 R	4/L =	.3930	10 PO	=	3996.0	TG	=	2909.6	H0	15	.51000-01
SECTION (1) TANK				DEPENDE	NT VARIA	BLE H/	HREF								
PHI	,0000	45.0000	67.5000 9	30.00001	12.50001	35.00001	57.50 <u>0</u>	0180.0000								
X/L																
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PAGE 129 TABULATED SOURCE DATA - LACR N2-28 (1H19) **DATE 03 NOV 75** (ROETO2) THIS BESCTESMANTWILL TO EXTERNAL TANK .51000-01 HO TO 2909.6 3996.0 ***** .39300 ALPHA (3) = .000 HAW/HT(3) = 1.000 RN/L DEPENDENT VARIABLE H/HREF SECTION (1) TANK .0000 45.0000 57.5000 90.0000112.5000135.0000157.5000180.0000 PHI X/L .000 .1652 .1111 .805 .0883 .010 .0567 .020 .0477 .040 .0363 .060 .000 .0187 .100 .0003 .125 .0085 .150 .0065 .175 .0052 .0050 .200 .250 .300 .325 .350 .0033****** .0024 .0024 .0024 .0020 .0116 .0013 .0068 .0187 .400 .0022 .0020 .0022 .0023 .0018 .0137 .425 .0031 .0105 .0072 .450 25055 .475 .0087 .0064 .500 .0019 0015 .0018 .0049 .525 .550 .0056 .0055 .0059 .0045 .0035 .575 .0035 .0031 .0017 .0027 .0053 .0016 .0016 .600 .625 .0032 .0034 .0035 .0018 .650 .0013 .0009 .675 .700 .0012 .0027 .0007 .0015 .0018 .0027 .0024 .0004 .0003 .750 .0012 .0013 .0002 .6001 .800 .0012 .0010 .0015 .0014 .0021 .0002******* .0007 .850

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DATE 03 NOV 75 TABULATED SOURCE DATA - LACR N2-28 ([H19]) PAGE 130

IHI9 B22C7F5M+V7WIII TB EXTERNAL TANK (RQETO2)

ALPHA (4) = 5.000 HAW/HT(1) = .850 RN/L = .39000 PO = 4001.3 TO = 2919.6 HO = .51000-01

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SECTION (1) TANK DEPENDENT VARIABLE H/HREF

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.0000 45.0000 67.5000 90.0000112.5000135.0000157.5000180.0000 PHI X/L .000 .1550 .1550 .005 .1014 .010 .0808 .020 .0500 .040 .0414 .050 .0315 .080 .100 .0148 .0000 . 150 .0057 .175 .0047 .0036 .0050 .300 .0036***** .0026 .0020 .325 .350 .375 .0021 .00260097 .400 .0040 .0030 .0024 .0023 .0015 .0056 .0111 .0037 .425 .0067 .450 .0069 .0042 .0022 .475 .500 .0034 .0027 .0024 .0017 .0034 .0053 .525 .0028 .550 .575 .0032 .0038 .0020 .0015 .600 .0037 .0034 .0013 .0012 .0045 .0013 .0007 .625 .650 .675 .700 .0024 .0022 .0021 .0011 .0016 .0014sossssssssssss .750 .0011 .0000******* 5100. .0027 .0012 .0010 .00104 .800 .0032 .0014 .850 .0009 .0002****** .900 .935 .0010 .0020 .0014 .0009* .0001 .974 .0001

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PAGE 131 DATE 03 NOV 75 TABULATED SOURCE DATA - LACR N2-28 (IHI9) (RQET02) 1H19 B22C7F5M4V7H111 TB EXTERNAL TANK .51000-01 ALPHA (4) = 5.000 HAM/HT(2) = .900 RN/L = .39000 = 4001.3a 2919.6 SECTION (1) TANK DEPENDENT VARIABLE HIHREF PHI .0000 45.0000 67.5000 98.0000112.5000135.0000157.5000180.0000 X/L .000 .1439 .1439 .005 .0942 .010 .0751 .020 .0465 .040 .0385 .080 .0293 .080100 .0138 .125 .0000 . 150 .0063 .175 .0044 .0047 .0033 .250300 .0034***** .0025 .0019 .325 .0020 .0024 .375 .400 .3090 .0037 .0034 .0028 .0022 .0022 .0014 .0052 .0104 .425 .450 .475 .0063 .0064 .0020 .0039500 .525 .550 .575 .0025 .0023 .0015 .0032 .0050 .0032 .0026 .0036 .0029 .0019 .0014 .600 .0034 .0032 .0012 1100. .0042 .0012 .0007

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PAGE 132 TABULATED SOURCE DATA - LACR N2-28 (IHI9) **DATE 03 NOV 75** (ROETOR) THIS BESC7F5M4Y7W111 TO EXTERNAL TANK - .51000-01 HO 2919.6 4001.3 TO PO a .39000 HAW/HT(3) =1.000 RN/L 5.000 ALPHA (4) = DEPENDENT VARIABLE HIHREF SECTION (1) TANK .0000 45.0000 67.5000 90.0000112.5000135.0000157.5000180.0000 PHI X/L .1258 .000 .0825 .005 .0653 .010 .0408 .020 .0338 .040 .0257 .050 .080 .0121 .100 .0000 . 125 .0055 .150 .0039 .175 .0029 .0041 oos.250 .300 .325 .350 .375 .400 .0017 .0022 .0030****** .0017 .0021 ***** .00790046 .0091 .0013 .0019 .0019 .0025 .0033 .0030 .0055 .0056 .0034 .0018 .450 .475 .500 .525 .0028 .0014 .0028 .0044 .0022 .0020 .0023 .0026 .0016 .0031 .0012 .575 .606 .0037 .0011 .0005 .0010 .0010 .0028 .0030 .625 .0004 .0002 .0018 .0019 .650 .675 .0009 .0013 .0011* .700 .750 .0017

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TABULATED SOURCE DATA - LACE N2-28 (1H19) DATE 03 NOV 75 (ROETOE) IHI9 BESC7F5M4V7WIII TE EXTERNAL TANK .51000-01 HO 3009.6 TO **3999.5** .850 RN/L = .36700 ALPHA (5) = 10.000 HAW/HT(I) = DEPENDENT VARIABLE H/HREF SECTION (1) TANK .0000 45.0000 67.5000 90.0006112.5000135.0000157.5000180.0000 PH1 X/L .1933 . 1933 .000 .1070 .005 .0782 .010 .0432 .020 .0356 .040 .0258 .060080 .0115 .1000046 .150 .0038 . 175 .0029 .0062 .200 .300 .0022 .0008 .0030 .0049 .0018 .0014 .0011 .350 .0057375 .0054 .0015 .0027 .0032 .0020 .0081 .0045 .400 .0069 .0034 .425 .0021 .0012 .0032 .450 .475 .0012 .0013 .0020 .0020 .0029 .0018 .0042 .500 .0006 .525 .550 .575 .0012 .0004 .0016 .0001 .0001 .0000 .0017 .0010 .0031 .0041 .0074 .625 .650 .675 .0001 .0005 .0004 .0037 .0002 .0000* .0011 .0004 .0036 .0024 .700 .0006 .0002 .0000 .750 .800 .0037 .0003****** .0004 .0008 .0066 .0050 .0036 .0025 .0001 ******* .0005 .850

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PAGE 134 TABULATED SOURCE DATA - LACR N2-28 (1H19) **DATE 03 NOV 75** (ROETO2) THIS BESCOFFMHV7WITT TB EXTERNAL TANK .51000-01 3009.6 HO TO PO 3999.5 HAM/HT(2) = RN/L .36700 10.000 ALPHA (5) = DEPENDENT VARIABLE H/HREF SECTION (1) TANK .0000 45.0000 67.5000 90.0000112.5000135.0000157.5000180.0000 PHI X/L .1780 .000 .1700 .0994 .005 .0727 .010 .0401 .020 .0331 .040 .0240 .050030 .0107 .100 125 .0043 .150 .0035 . 175 .0027 .0058 .200 .250 .0020 .0028 .0045 .0000 .300 .0017 .325 .350 .375 .0013 .0010 .0053 .0050 .0014 .0025 .0075 .0084 .0030 .3019 .400 .0042 .0032 .425 .0011 .0030 .0020 .450 .0011 .475 .0019 .0012 .0019 .0039 .0027 .0017 .500 .0006 .525 .550 .0015 .0011 .0004 1000.

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PAGE 135 DATE 03 NOV 75 TABULATED SOURCE DATA - LACR NE-28 (IHI9) IH19 B22C7F5M4V7WIII TB EXTERNAL TANK (RQETO2) = .51000-01 TO 3009.6 HO 3999.5 HAH/HT(3) = RN/L = .35700 PO ALPHA (5) = 10.000 1.000 DEPENDENT VARIABLE H/HREF SECTION (1) TANK .0000 45.0000 67.5000 90.0000112.5000135.0000157.5000180.0000 PHI X/L .1485 .000 .1485 .0870 .005 .010 .0636 .020 .0352 .040 .0290 .080 .0210 .0094 .100 .125 ***** .0038 . 175 .0031 .200 .0051 .0024300 .325 .350 .375 .0018 .0040 .0000 .0024 .0014 .0008 .0012 .0047 ******* .0044 .0022 .0066 .0056 .0037 .0026 .0016 .0012 .400 .425 .0028 .450 .475 .500 .525 .550 .575 .0017 .0010 .0026 .0009 .0034 .0023 .0015 .0017 .0016 .8011 .0005 .0013 .0009 .0003 .0001 .0080 .0001 .0000 .0014 .0008 .0034 .0025 .0001 .0003 .650 .0030 .0004 .675 .700 .0002

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DATE 03 N	OV 75		TABU	LATED SO	URCE DAT	TA - LACR	NS-58 ((B1H)								PAGE	136
				IH	19 TØ		E	CTERNAL T	ANK				(RQETO	171 (75 }
	REFE	ERENCE DA	\TA											•	0.	NOV	,,,
SREF = 2	2690.0000		WIDD									PA	RAMETRIC	DATA			
LREF =	.000 000.3000 0000.0095) in.) in.	XMRP YMRP ZMRP	=	.0000 .0000 .0000						BETA = BLTRIP =		.000 .000	RN/L MACH	=		.500 19.800
ALPHA (1)	= -10.	000 н	IAW/HT(1) =	.850	RN/L =	38900	PO	=	3990.8	TO	10	2919.6	НО			.51000-
SECTION (DTANK				DEPEND	ENT VARIA	ABLE H/HR	EF									.5.000
PHI	.0000	45.0000	67.5000	90.0000	112.5000	135.0000	157.50001	80.0000									
X/L																	
.000 .005 .010 .020 .040 .060 .125 .150 .175 .200 .325 .325			• 0029•	.0056		.0052 .0030	•	.1600 .0095 .1203 .0925 .0538 .0424 .0327 .0220 .0193 .0146 .0111									
.400 .485 .480 .478	.0009	.0014	.0009	.0025	.0044	.0052	.0058	.0063 .0065 .2000.									
.500 .525 .550 .575			.0028	*0500.	0 # 4 # 9 4 4	.0026		0800.									
.600 .625	.0005		.0016*	*****	.0038	.0040	.0045	.0050 .0040 .0047									
.650 .675			.0014			.0050*	4 * * 6 6 6 6 A	.0050									
.700			.0014	.0023	.0033	.0048*	*****	.0061									
.750 .800	.0007	.0009	.0013	0010	0030	-0045	.0066	.0065									

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	DATE 03 NO	75		TABUL	ATED SOL	URCE DATA - LACR NE-28 (IHI9) PAGE 1											
					IHI	9 T9		Ē	EXTERNAL T	ANK				(RQETO7	73		
	ALPHA ([]	= -10.0	300 F	IAH/HT(2) =	.900	RN/L	= .38900) PO	133	3990.8	Ť0	100	2919.6	но	5	.51000-01
	SECTION (1) TANK				DEPEN	DENT VAI	RIABLE H/H	REF								
4	PHI	.0000 4	5.0000	67.5000 9	90.00001	12.500	0135.00	00157.5000	180.0000								
REPRODUCIBILITY OF THE	X/L .000 .005 .010 .020 .040 .080 .100 .1200 .150 .150 .2500 .3250 .3750 .405 .4750 .550 .5575 .605 .6575 .605 .650 .7750 .850 .850 .850 .850 .850 .850 .850 .8	.0008	.0013		.0052			19 .0054 19 .0056 14 .0056 17 .0030 17 .0042 17*******	.1484 .0088 .1117 .0764 .0594 .0305 .0394 .0305 .0136 .0103 .0103 .0103 .0103 .0103 .0103 .0103 .0059 .0059 .0059 .0059 .0058 .0058 .0058 .0058 .0058 .0058 .0058 .0058 .0058 .0058 .0058								

PAGE 138

DATE 03 NOV	75		TABUL	ATED SOUP	RCE DATA	- LACR N	15-58 (1)	119)							PAGE	139
				IH19	87 6		EXTERNAL TANK						(RQET07)			
ALPHA (1)	= -10.00	00 HA	W/HTC 3) = 1.	.000 R	N/L =	.38900	PO	100	3990.8	TO	æ	2919.6	но	5	.51000-01
SECTION (DTANK				DEPENDE	NT VARIA	OLE H/HRE	F								
PHI	.0000 45	5.0000 E	57.5000 S	30.000011	12.50001	35.000019	57.500016	0.000								
X/L																
.000				. 1296				. 1296 . 0078								
.005 .010								.0977								
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.525						2070	0005	.0049								
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.650			.0012			.00414	*****	.0041								
.675								******								
.700			.0012	.0019	.0027	.0039*	.0054	.0050 .0053								
.750 .800	.0005	.0007	.0012	.0015	.0031	.0037	.0054	.0053								
.850	.0005	.0007				.0041	.0057	.0060								
.900			.0011	.0019	.0030	.0037	.0055	.0058								
.935								.0042								
.974								.0007								

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		THIS TO EXTERNAL TANK)
ALPHA (2)	= -5.000	1 THYWAH) =	.850 F	N/L =	.37900	PO	= 3997.0	TO	•	2959.6	HO
SECTION (DTANK			DEPENDE	NT VARIA	BLE H/HRI	EF					
PHI	.0000 45.00	00 87.5000 9	90.00001	12.50001	35.00001	57.500016	20.000					
X/L					55100001	5.150001	50.000					
.000			. 1424				. 1424					
.005							.0896					
.010 .020							.0965 .0655					
.040							.0550					
.080 .080							.0417					
.100							. 0322 . 0240					
. 125							0162					
. 150							.0124					
. 175 . 200			0000				.0098					
.250			.0049			•	.0075					
.300		.0024	.0020*	*****		•						
.325 .350					.0036							
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.425 .4 5 0							.0032					
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.900		.0013	.0019	.0020	.0020	.0026	.0028					
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PAGE 140 (RQETO7) EXTERNAL TANK

IH19 TB = .51000-01 HAW/HT(2) = .900 RN/L = .37900 PO **2959.6** ALPHA (2) = -5.000 DEPENDENT VARIABLE HYHREF SECTION (L)TANK ,0000 45.0000 67.5000 90.0000112.5000135.0000157.5000180.0000 PHI

X/L .005 .010 .020 .040 .060 .080 .100 .125 .150 .175			·	.1320				.1320 .0832 .0896 .0608 .0511 .0387 .0299 .0223 .0150 .0116 .0070
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.575 .600 .625	.0005		.0010**		. 0024	.0030	.0026	.0032
.650 .675			.0012			.0023**	*****	.0030
.700			.0010	.0014	.8020	.0022**		.0027
.750			.0011			.0020	. 0925	.0025
.800	.0006	.0006	.0012	.0016	.0020	.0025	.0023	.0027
.650						.0025	.0024	.0025
.900			.0012	.0018	.0019	.0019	.0025	.0026
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TABULATED SOURCE DATA - LACR NZ-28 (1H19) DATE 03 NOV 75 (ROETO7) EXTERNAL TANK 1H19 T8 .51000-01 GH 2959.6 TO 3997.8 = .37900 PO HAW/HT(3) * 1.000 RN/L ALPHA (2) = -5.000 DEPENDENT VARIABLE HIHREF SECTION (1) TANK .0000 45.0000 67.5000 90.0000112.5000135.0000157.5000180.0000 PHI X/L .1153 .1153 ີດວດ .0728 .005 .0783 .010 .0533 .020 .0448 .040 .0340 .080 .0262 .080 .0196 .100 .0132 . 125 .0101 . 150 .0080 .175 0062 .0040 .200 .250 .0020 .0015****** .300 .0089 . 325 .0031 .0010 .350 .0039 .0026 .0018 .0011 .0007 .0017 .00160000**** ,400 .0026 .425 .450 .0017 .0018****** .475 .0010****** .0011 .0005******* .0014 .500 .0016 .525 .0011 .0004 .0010 .550 .001B .575 .600 .0028 .0028 .0023 .00090404046 .0021 .0004 .0028 .625 .0026 .0020****** .0011 .653 .675 .001904044444 .0024 .0017 .0012 .0009 .700 .750 .0022 .0022 .001B .0009 .0020 .0922 .0024 .0017 .0014 .0005 .0005 .0010 .800 .0022 .0022 .850 .0022 .0023 .0016 .0016 .0010 .980 .0016

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PAGE 142

DATE 03 NO	OV 75		TABULA	ATED SOUP	RCE DATA	- LACR	45-58 (I)	4191						PAUL	140
				1819	3 T8		EX.	TERNAL TA	ANK			(RQETO7)		
ALPHA (3)) = .	. 000.	() THYWA) m ,	.850 RI	N/L =	.39500	P0	4015	.3 TO	=	2909.6	НО	•	.52000-01
SECTION (NAATCL				DEPENDE	NT VARIA	BLE H/HR	EF							
PHI	.0000	45.0000	67.5000 9	30.000011	12.50001	35.00001	57.500011	80.0000							
X/L .000 :005				. 1532				. 1532 . 0344							
.010.								.0880 .0575							
.040								.0483 .0371							
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.325 .350						.0033	•	.0021							
.375						647 88 8		.6026							
.400 .425	.0019	.0021	.0022	.0024	.8021	. 0004	.0023	.0021 .0013							
.450 .475						.0020		.0006							
.500 .525			.0018	.0016*	****	.0016	.60170	.0015							
.550 .575						.0016	.0014	.0004 .0017							
.600	.0014		.0015*	446466	.0012	.0018	.0017	.0012							
.625 .650			.0011			.0017*	******	.0014							
.875 .700			.0008	.0012	.0014	.0012*		.0015							
.750 .800	.0013	.0018	.0015 .0012	.0014	.0015	.0019	.0017	.0010							
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DATE 03 NOV 75 TABULATED SOURCE DATA - LACE N2-28 (1H19) THIS TO LATERNAL TANK (RQETQ7) ALPHA (3) = .000 HAW/HT(2) = .900 - .39500 PO **4015.3** TO 2909.6 HO SECTION (1) TANK DEPENDENT VARIABLE HYHREF .0000 45.0000 67.5000 90.0000112.5000135.0000157.5000180.0000 PHI X/L .000 .1420 .005 .0319 .010 .0817 .020 .0534 .040 .0448 .060 .0345 .080 .0267 .100 .0192 . 125 .0115 . 150 .0088 . 175 .0064 .200 .0039 .0052 .250 .0021 .0023******325 .0023 .350 .0030 .0020 .375 .0024 .400 .0018 .0020 .0021 .0022 .0020 .0004 .0021 .0020 .425 .450 .0012 .0019 .0019 .0005 . 475500 .525 .0017 .0015******* .0015 .0015****** .0014 .550 .0015 .0013 .0003 .575 .600 .0016 .0013 .00140000000 .0011 .0017 .0016 .0011 .625 .0015 .650 .0010 .0016******* .0013 .675 .700 .0007 .0011 .0013 .00115566666 .0014 .750 .800 .0014 .0013 .0016 .0009 .0012 .0016 .0011 .0013 .0014 .0014 .0014 .0013 .850 .0013 .0012 .0013

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TABULATED SOURCE DATA - LACE N2-28 (IH19) DATE 03 NOV 75 (ROETOT) EXTERNAL TANK 1H19 TB .52000-01 HO 2909.6 TO 4015.3 PQ .39500 1.000 RN/L HAW/HT(3) = .000 ALPHA (3) = DEPENDENT VARIABLE H/HREF SECTION (1) TANK .0000 45.0000 67.5000 90.0000112.5000135.0000157.5000180.0000 PHI X/L .000 . 1239 .0280 .005 .0467 .020 ..0392 .040 .0302 .060 .0234 .080 .0168 .100 .0101 .0077 .0056 .175 .0045 .0035 .200 .250 .0018****** .0019 .0020 .325 .350 .375 .0017 .0024 .0021 .0017 .0019 .0003 .0017 .0019 .0017 .0018 .0016 .400 .0010 .425 .0016 .0005 .0017 .450 .475 .500 .0014****** .0013 .0013****** .0015 .0012 .525 .0003 .0011 .0013 .550 .0014 .575 .600 .0010 .0014 .0015 .0010 .0012****** .0012 .0013 .625 .0011 .0014000000 .0009 .650 S100. .575 .700 .0010* .0011 .0010 .0006 .0008 .0014 .0011 .0012 .750 .0012 .0012 .0013 .0011 .0010 .0014 .0010 .0011 .0010 .800 .0011 .0001 .850 .0009

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PAGE 1 ** **DATE 03 NOV 75** TABULATED SOURCE DATA - LACR N2-28 (1H19) 1H19 T8 EXTERNAL TANK (ROETO7) .51000-01 ALPHA (4) = 5.000 HAW/HT(1) = .39400 PO 4010.1 2909.5 HO .850 RN/L SECTION (!) TANK DEPENDENT VARIABLE H/HREF PHI .0000 45.0000 67.5000 90.0000112.5000135.0000157.5000180.0000 X/L .000 .1726 .1726 .005 .0779 .010 .0835 .020 .0510 .040 .0428 .060 .6313 .0235 .0170 .100 . 125 .0099 .150 .0073 .175 .0056 .200 .250 .0054 .0040 .0037 .0021 ******* .325 .350 .375 .0019 .0020 .0016 .400 .0021 .0039 .0032 .0028 .0024 .0017 .0013 .0016 .425 .450 .0017 .0020** 1000. .475500 .525 .550 .0022 .0017000000 .0028 .0023****** .0013 .0014 .0013 .0002 .575 .0011 .600 .625 .0018 .0037****** .0012 .0018 .0012 .0009

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PAGE 146 TABULATED SOURCE DATA - LACR N2-28 (1H19) **DATE 03 NOV 75** (RQETO7) EXTERNAL TANK TH19 T8 .51000-01 HO 2909.6 TO PO 4010.1 .39400 .900 RN/L 5.000 # (S)TH\WAH ALPHA (4) = DEPENDENT VARIABLE H/HREF SECTION (1) TAND .0000 45.0000 67.5000 90.0000112.5000135.0000157.5000180.0000 PHI . 1602 . 0725 X/L .1602 .000 .005 .0776 .010 .0474 .020 .0398 .040 .060 .0218 .080 .0158 .100 .0092 .0068 . 125 .150 .175 .0037 .0050 .200 .250 40444 .0019****** .0035 .300 .0017 .325 .350 .00180015375 .0012 .0015 .0019 .0016 .0022 .0026 .0029 .400 .0036 .0016 .425 .0019****** .0001 .450 ,475 .0020 .0015** .0021******* .0026 .500 .0012 .525 .550 .575 .0012 .0001 .0013 .0010 .0009 .0012 .0017 .0011 .0034****** .0017 .0009 .625 .0010 .0010******* .0011 .650 .675 ******* .0009 .0010 ****** 0500. .0014 .0012 .700 .750 .0011 .0007 .0011 .0022 .0007 .0014 .0015 .0009 .0027 .0018 .0026 .800 .0025 .0008 .0006 .0009 .0012 .850 .900 .935 .974 .0009 .0005 .0011 .0027 .0017 .000B

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TABULATED SOURCE DATA - LACR N2-28 (IH19) (ROETO7) DATE 03 NOV 75 EXTERNAL TANK a .51000-01 TH19 T8 2909.6 TO w 4010.1 PO **39400** 1.000 RN/L HAW/HT(3) = 5.000 ALPHA (4) = DEPENDENT VARIABLE H/HREF SECTION (1)TANK .0000 45.0000 67.5000 90.0000112.5000135.0000157.5000180.0000 PHI . 1401 X/L .1401 .0635 .000 .0680 .005 .0416 .010 .0349 .020 .0256 .040 .0192 .060 .0139 .090 .0081 .100 .0060 . 125 .0046 .150 .0033 .175 .0044 .200 .250 .300 .325 .0015******* .0031 .0015 .0016 ***** .0013 .3500010 .0013 .0017 .0014 .0019 .0023 .0026 .0014 .0032 .400 .0016* .425 .0001 .450 .475 .0013****** .0018 .0019****** .0023 .0011 .500 .525 .550 .0010 .0001 S100. .0009 .0010 .0007 .575 .0015 .0009 .003043***** .0008 .0015 .600 .0009***** .0009 .625 .0009 .650 .0008 .0009****** .675 .0012 .0018 .0010 .0010 .0305 .700 .0010 .0019 .0006 .0013 .750 .0013 .0008 .0016 .0023 .0007 .0022 .0022 .0008 .800 .0011 .0005 .0008 .B50 .0004 .0010

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DATE 03 NOV	/ 75		TABUL	ATED SOU	RCE DATA	- LACR	N5-58 (I	H191						PAGE	148
				IHI	9 70		EX	TERNAL	TANK			(RQE 107)			
ALPHA (5)	= 10.	000) TH\WAH) ==	.850 R	N/L =	.37900	PO	•	3994.3	то	2959.6	HO	œ	.51000-01
SECTION (DANK				DEPENDE	NT VARIA	BLE H/HR	EF							
PHI	.0000	45.0000	67.5000	90.00001	12.50001	35.00001	57.50001	80.0000							
X/L .000 .005 .010 .020 .040 .060 .100 .125 .150				. 1614				.1614 .0179 .0708 .0397 .0328 .0236 .0178 .0118 .0064 .0051							
.200 .250				.0051			_	.0036							
.300 .325 .350 .375			.0037	.0019*	• • • • • • • • • • • • • • • • • • • •	.0013	•	.0014							
.400 .425 .450 .475	.0044	.0036	.0023	.0009	.0022	.0011	.0017	.0016 .0007 .0001 .0007				2 8			
.500 .525 .550 .575		•	.0032	.0025*		.0015	.0007**	.0007							
.600 .625	.0055		.0033**		.0011	.0009	.0007	.0006							
.650 .675			.0027			.0011*		8000. 2000.							
.700 .750 .800 .850 .900 .935	.0048	.0036	.0029 .0030 .0030	.0019 .0018 .0017	.0013 .0014 .0011	.0007** .0009 .0007 .0010 .0004	.0006 .0003 .0087 .0002	8000. 8000. 8000. 8000. 8000. 8000.							

PAGE 149 **DATE 03 NOV 75** TABULATED SOURCE DATA - LACE N2-28 (IHI9) (ROETO7) 1H19 T8 EXTERNAL TANK .51000-01 ALPHA (5) = 10.000 = (S)TH/WAH.900 RN/L **= .37900** PO 3994.3 TO 2959.6 HO SECTION (1) TANK DEPENDENT VARIABLE H/HREF PHI .0000 45.0000 67.5000 90.0000112.5000135.0000157 5000180.0000 X/L .000 .1498 .1498 .005 .0167 .010 .0658 .020 .0369 .040 .0305 .060 .0219 .080 .0164 .100 .0110 . 125 .0060 . 150 .0047 .175 .0035 .0047 .200 .0024 .250300 .00340017******* .0012 .350 .0005 .0013 .375400 .0041 .0033 .0022 .0008 .0011 .0015 .0020 .0016 .425 .0007 .450 .0011 .0313 .0001 .475 .0006 .500 .0030 .0024****** .0014 .0006****** .525 .0006 .550 .0009 .0007**575 . 0005 .600 .625 .0051 .0030****** .0010 .0009 .0007 .0007 .0006 .650 .0025 .0010****** .0004 .675 .700 .0027 .0017 .0012 .0007****** .0007 .0005 .750 .0028 .0008 .0007

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DATE 03 NOV	75		TABUL	TABULATED SOURCE DATA - LACR NZ-28 (1H19)											PAGE	150
				IHI	9 TB		EX	TERNAL	TANK				(RQETO7)			
ALPHA (5)	= 10.	000	HAW/HT(3) = 1	.000 R	N/L =	.37900	PO	•	3994.3	TO	*	2959.6	HO	12	.51000-01
SECTION (1)TANK				DEPENDE	NT VARIA	BLE H/HR	EF								
PHI	.0000	45.0000	67.5000	90.00001	12.50001	35.00001	57.50001	90.0000								
X/L																
.000				.1309				.1309								
.005 .010								.0146								
.020								.0576 .0324								
.040								.0268								
.060								.0192								
.080 .100		•						.0144								
. 125								.0097 .0052								
. 150								.0041								
.175								.0031								
.200 .250				.0041			_	1500.								
.300			.0030	.0014*				******								
.325						.0011	_									
.350						.0004		.0011								
.375 .400	.0036	0000						*****								
.425	.0030	.0029	.0019	.0007	.0018	.0009	.0014	.0013								
.450						.0011	.0010	.0006								
.475							.00.0	.0005								
.500 .525			.0026	.0021*	4+4+4+	.0012	.0005*	*****								
.550						.0008	0006#	.0006								
.575						.0000	.0000	.0005								
.600	.0045		.0027*1	44444	.0009	.0008	.0006	.0006								
.625								.0005								
.650 .675			.0022			• 2000.	*****	.0004							•	
.700			.0024	.0015	.0011	0006*	******	8000.								
.750			.0025	.0010	.0011	.0007	.0004	.0006								
.800	.0033	.0029	.0024	.0015	.₽01E	.0006	.0003	.0007								
.850 .900			0027	0017	0000	.0008	.0006	.0004								
.935			.0022	-0013	-0009	.0003	.0002	.0007								
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PAGE 151
                                TABULATED SOURCE DATA - LACR N2-28 (IHI9)
DATE 03 NOV 75
                                                                                                                 (ROETOB)
                                                                                                                             ( 03 NOV 75 )
                                           IH19 TB
                                                                       EXTERNAL JANK
                                                                                                            PARAMETRIC DATA
               REFERENCE DATA
                                                                                                                                         .500
                                                                                                                 .000
                                                                                                                         RN/L
                                                                                                 BETA
SREF =
          2690.0000 SQ.FT.
                               XMRP
                                              .0000
                                                                                                                                      19.800
                                                                                                                         MACH
                                                                                                 BLTRIP
                                                                                                                 .030
LREF
                               YMRP
                                              .0000
      =
          1290.3000 IN.
BREF
          1290.3000 IN.
                               ZMRP
                                              .0000
     22
SCALE =
               .0060
                                                                                                                3009.6
                                                                                                                            HO
                                                                                                                                       .51000-01
                                                                                                     TO
                                                                              PO
                                                                                         4050.4
ALPHA ( 1) = -10.000
                           HAH/HT( 1) =
                                               .850
                                                      RN/L
                                                                 .37100
                                               DEPENDENT VARIABLE H/HREF
 SECTION ( 1) TANK
PHI
              .0000 45.0000 67.5000 90.0000112.5000135.0000157.5000180.0000
  X/L ·
                                                                            .1536
     .000
                                        .1536
                                                                            :0011
     .005
                                                                            .1149
     .010
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     .020
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     .040
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DATE US NO	75		TABUL	ATED SO	NS-58 ()	(H19)						PAGE	152		
				IH	19 TB		Ελ	TERNAL	TANK			(RQETOB)			
ALPHA (1)	<u>10.</u>	000	HAW/HT(a	?} =	.900 F	RN/L =	.37100	PO		4050.4	TO	3009.6	но	_	F1000 01
SECTION (DTANK				DEPENDS	NT VARIA	BLE H/HF	=		.05611		 3009.6	HU	8	.51000-01
PHI	.0000	45.000	0 67.5000	90.000n											
X/L				5010000	16.3000	. 55.00001	37.50001	80.0000							
.000 .005 .010 .020 .040 .060 .180 .125 .150				. 1425				.1425 .0010 .1067 .0740 .0625 .0484 .0366 .0291 .0160			-				
.250 .300			90946	40948948		÷		2010.							
. 325			• 902.9*	44798988		.0049	•	*****				•			
.350 .375					•			.0055							
.480 .425	.0010	.0017	.0017	0029	.0045	.0032	.0056	.0062							
.450 .475						.0053	.0045	.0039 .0005							
.500 .525			.0013	.00210	000000	.0047									
.550 .575				•		.0044	.0047	.0058 .0013							
.600 .625	.0008		.00[4*	1004344	.0016	.0042	.0054	.0058							
.650 .675			.00.5			.0023**		.0052			ě				
.700 .750			.0014 .0018	.0022	.0037	.0037°°	**************************************	.0037							
.800 .850	.0006	.0008	.0015	.0022	.0029	.0055	.0037	.0047	•						
.900 .935 .974			.0015	.0025	.0028	.0048	.0049	.0047 .0048 .0057 0002							

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(ROETOB)

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DATE 03 NOV 75 TABULATED SOURCE DATA - LACR N2-28 (1H19) IHI9 TB EXTERNAL TANK ALPHA (1) = -10.000HAH/HT(3) =1.000 RN/L .37100 PO 4050.4 SECTION (1) TANK DEPENDENT VARIABLE HYHREF PHI .0000 45.0000 67.5000 90.0000112.5000135.0000157.5000180.0000 X/L .000 .1244 .005 .1244 .010 .0933 .040 .0548 .080 .0548 .0425 .100 .0338 .125 .150 .175 .0255 .0141 .0129 .200 .250 .300 .325 .0118 .0046 .0092 .0021-04-++0000-66-000043 *** .375 .0048 .0028 .400 .0009 .0015 .0054 .0015 .0028 .425 .450 .0039 .0036 .0049 .0049 .0034 .475 .500 .525 .0046 .0040 .0004 ***** .0011 .0018****** .0041 .0055******* .550 .0051 .575 .0038 .0041 .0012 .600 .625 .650 .0007 .0052 .0012 ****** .0014 .0036 .0047 .0051 .0052 .0013 .675 .700 .750 .0020******* .0046 .0018 .0019 .0032 .0033* .0033 800 .0042 .0035 .0005 .0007 .0038 .0014 .0019 .0025 .950 .0049 .0033 .0042 .0048 .0043 .0041 -0013 .0022 .0025 .0043 .935 .0043 .974

DATE 03 NOV	75		TABUL	ATED SOU	RCE DATA	A LACR	CR N2-28 (1H19)								PAGE	154
				IHI	9 YB		EXT	TERNAL T	ANK				(RQETOB)		
ALPHA (2)	- -5.	000 H	IAH/HT (1) = '	.850 A	NVL =	.39200	PO	석	4013.6	TO	52	2919.6	HO	22	.51000-01
SECTION (DTANK				DEPENDE	ENT VARIA	BLE H/HRE	EF								
PHI	.0000	45.0000	67.5000	90.00001	12.50001	35.00001	57.500016	30.0000								
X/L .005 .010 .020 .040 .060 .080 .100 .175 .200 .250 .325 .375 .400 .425	.0020	.0016	.0026*	.0058	·••••••	.004! .0007 .0025 .0038		.1664 .0311 .1094 .0741 .0629 .0475 .0369 .0277 .01132 .0115 .0086 .0048 .0046 .0048								
.475 .500 .525 .550 .575 .600 .625 .675 .700 .750 .800 .850	.0000.	.0013	.0019 .0019* .0014 .0018 .0012 .0017	**************************************	.0007		.0037** .0029 .0037 ***** .0038 .0038 .0032 .0035	.0034 .0007 .0035 .0037 .0016 .0033 .0047 .0041 .0037 .0039 .0034								
.974							4.	*****								

PAGE 155 TABULATED SOURCE DATA - LACR N2-28 (1H19) DATE 03 NOV 75 (RQETOB) EXTERNAL TANK IH19 T8 .51000-01 a 2919.6 PO 4013.6 = (S)TH/WAH .900 RN/L .39200 -5.000 * (S) AHPJA DEPENDENT VARIABLE H/HREF SECTION : 1) TANK .0000 45.0000 67.5000 90.0000112.5000135.0000157.5000180.0000 PHI X/L .000 . 1544 .0289 .005 .1016 .010 .020 .0689 .0583 .040 .080 .080 .0442 .0343 .125 .150 .175 .0123 .0107 .250 .250 .300 .325 .350 .0054 .0080 .0024easasasessas .0038 .0006 .0040 .0024 .0043 .0018 .0031 .0033 .0040 .400 .0015 .0015 .0029 .0035 .425 .450 .475 .0045 .0030 .0035 .0006 .500 .525 .550 .575 .0034****** .0018 .0021****** .0032 .0032 .0028 .0027 .0007 .0033 .600 .625 .650 .0034 .0034 .0010 .0007 .0013 .0018******* .0015 .0035****** .0031 .0013 .0030****** .0043 .700 .0017 .0023 .0023 .0035 .0030 .0033 .0030 .750 .800 .0028 .7038 .0011 .0035 .0008 .0012 .0017 .0023 .0028 .0015 .850 .0029 .0032 .900 .0012 .0021 .0026 .0024 .0023

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PAGE 156 TABULATED SOURCE DATA - LACR NE-28 (1H19) DATE 03 NOV 75 (RQETO9) EXTERNAL TANK IH19 T8 .51000-01 HO 29,9.6 TO = 4013.6 PO ***** .39200 RN/L HAW/HT(3) * 1.000 -5.000 ALPHA (2) = DEPENDENT VARIABLE HYHREF SECTION (1) TANK .0000 45.0000 67.5000 90.0000112.5000135.0000157.5000180.0000 PHI X/L .1349 .1349 .000 .0254 .005 .0890 .010 .0604 .020 .0511 .040 .0388 .060 -0301 .080 .0226 .100 .0117 . 125 .0108 .150 .0094 .175 .200 .0071 .0.147 .250 .300 .0034 .325 .0035 .0005 .0038 .0021

.0021

.375 .0035 .0029 .0025 .0028 .0051 .0013 .0014 .0016 .400 .425 .0005 .0031 .0026 .450 .4750030* 8500. .0019******* .0015 .500 .0028 .525 .550 .575 .0025 .0024 .0005 .0029 .0030 .0011 .0030 .0016****** .0006 .600 .0008 .0013 .625 .650 .675 .0027 .0031****** .0012 .0038 .0026******* .0020 1500. .0015 .700 .0033 .750 .800 .0010 .0028 .0024 .0030 .0020 .0015 .0005 .0010 .0014 .0032 .0026 .850 .0028 .0027 .0022 .0021 .0019 .0011

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PAGE 157 TABULATED SOURCE DATA - LACR N2-28 (1H19) **DATE 03 NOV 75** (ROLTOS) EXTERNAL TANK 1H19 T8 .52000-01 HO TO 2909.6 PO 4054.5 .40000 RN/L ALPHA (3) = .000 HAM/HT(1) = DEPENDENT VARIABLE HYHREF SECTION (1) TANK .0000 45.0000 67.5000 90.0000112.5000135.0000157.5000180.0000 PHI X/L .1537 . 1537 .000 .0051 .005 .0883 .010 .0572 .020 .0477 .040 .0361 .0279 .080 .0203 .100 .0093 .125 .0087 .0069 .175 .0055 .0050 .250300 .325 .350 .003[6000#000000000 .0029 .0019 **** .0026 .002> .375 .400 .0022 .0022 .0034 .0030 .0027 asoo. .0019 .0012 1500. .425 .0030 .0021 .0003 .450 .475 .0019****** .500 .525 .0002 .001000000000 .0021 .0018 .0021 .0014 .0003 .550 .0018 .575 .0019 .0017 .0017 .0013 .0018 .0018****** .600 .0019 .625 .0012 ****** .0018 .650 .0015675 .0017 .0022 .0012+***** .700 .0015 .0012 .0014 .0011 .0017 .0015 750 .0014 .0012 .0013 .0014 .0018 .0016 .0011 .0009 .800 .0018 S100. .0012 .850 .0018 .0011 .0012 .0011 .0014 .0013 000.

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TABULATED SOURCE DATA - LACE NE-28 (IH19)
DATE 03 NOV 75
                                                                                                                    (ROETOB)
                                                                        EXTERNAL TANK
                                            THIS TO
                                                                                                                                           .52000-01
                                                                                                                  2909.6
                                                                                                       TO
                                                                               PO
                                                                                          4064.5
                                                                   .40000
                                                       RN/L
                            HAN/HT( 2) =
                                                .800
                    .000
ALPHA (3) =
                                                 DEPENDENT VARIABLE HYHREF
 SECTION ( 1) TANK
              .0000 45.0000 67.5000 90.0000112.5000135.0000157.5000180.0000
PHI
  X/L
                                         .1425
     .000
200.
                                                                              .0056
                                                                              .0819
     .010
                                                                              .0531
     .020
                                                                              .0443
     .040
                                                                              .0336
      .060
                                                                              .0260
      .080
                                                                              .0188
     .100
                                                                              .0087
                                                                              0080
      . 150
                                                                              .0063
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                                          .0047
      .250
                                 .0029###############
      .300
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      325
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                                                            .0022
                                                                     .0021
                                                                              .0021
                                                   .0027
                                                            .0018
                                          .0032
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      .400
                                                                              .0019
      .425
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                                                                     .0020
                                                                              .0003
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                                                                           ***
      .475
                                                                     .0017******
                                                            .0019
                                          .00090494464
                                 .0002
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                                                                     .0013
                                                                               .0017
      .575
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                                                   .0016
                                                            .0012
                                 .0016******
      .600
.625
               .0017
                                                                               .0018
                                                            .0012*******
                                                                               .0017
                                 .0014
      .650
      .675
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                                                                               .0015
                                                            .0011*
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                                          .0014
                                                   .0011
                                                                              .0014
                                                                     .0015
                                  .0013
      .750
                                                                     .0008
                                                             .0010
                                                   .0015
                        .0012
                                 .0013
                                          .0016
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               .0011
                                                            .0011
                                                                               .0017
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PAGE TABULATED SOURCE DATA - LACR N2-28 (1H19) DATE 03 NOV 75 (RQETOB) EXTERNAL TANK THIS TE HO 2909.6 TO 4064.5 PO - .40000 1.000 RN/L HAW/HT(3) = .000 ALPHA (3) = DEPENDENT VARIABLE HYHREF SECTION (1) TANK .0000 45.0000 67.5000 90.0000112.5000135.0000157.5000180.0000 PHI X/L .1245 .1245 .0049 .005 .8465 .020 .040 .060 .0388 .0294 .0228 .080 .0165 .100 .125 .150 .175 .200 .250 .305 .375 .405 .475 .525 .550 .575 .0056 .0044 .0041 *4040 .0025*********** .0023 .0016 .0021 .0019 .0018 .0018 .0024 .0016 .0028 .0022 \$500. .0010 .0017 .0002 .0017 .0024 .0015****** .0017 .0002 .0008****** .0014 .0011 .0003 .0017 .0015 .0014 .0015 .00:444444 .0014 .0010 .0015 .600 .625 .650 .675 .700 .750 .800 .850 .0016 .0015 .0010****** .0012 .0014 .0010-40-40-.0013 .0010 .0018 .0009 .0013 .0013 .0011 .0007 .0012 .0013 .0014 .0011 .0012 .0009 2100. .0014 .0010 .0010 .0010 .0009 .0015 .0009 .0011 .0005

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PAGE 160

DATE 03 NOV	75			TABULATED SOURCE DATA - LACR N2-28 (1H19)															60
					IHI	9 T8			EX	TERNAL	TANK				(RQETOB)				
ALPHA (4)	Q#	5.000	HA	W/HTC 1) 10	.850	RN/L	81	.38900	PO	578.	3989.0	70	**	2919.6	HO	-	.5	1000-01
SECTION (1) TAI	VK				DEPEN	IDENT 1	VARIA	BLE H/HR	EF									
PHI	.001	00 45.1	0000 6	7.5000 S	90.00001	12.500	0135.0	10000	57.50001	80.0000)								
X/L																			
.000 .005					. 1576					. 1576 . 0147									
.010										.0794									
.020										.0494	+								
.040										.0411									
.080 080				•						.0302									
.100										.0219 .0159	,)								
.125										.0075	j								
.150										.0062	!								
.175 .200					.0052					.0049									
.250					.005				•										
.300				.0030*	***	***	0		ē	444044									
.325								0018											
.350							3440			.0013									
.375 .400	.003	35	0016	.0005	.0004	.002		0010 0014	.0009	.0012									
.425			44.4	+0000	10003	.000			.0003	.0015									
.450							.1	0013		4040960									
.475 .500				.0027	00204	****		J214		****									
.525				,006,	.0054.		• • •	J. 14	.0010-	.0007									
.550							.1	0013	.0010	.0003									
.575										.0005									
.600	.00	29		.0020**	909999	.001	4 .	2100	.0005	.0009									
.625 .650				.0019				00118	*****	.0010									
.675				.0019			• '	9011-		4650594									
.700				.0021	.0012	.001			****	.0005									
.750	-			.0021				0010	.0006	.0000									•
.800 .850	.00	งน .	0027	.0020	.0014	.001		010	44000. ******	****									
.908				.0017	.0015				*****	.0003									
.935										0005	}								
.974						•				1000ء									

PAGE 151 TABULATED SOURCE DATA - LACR N2-28 (1H19) **DATE 03 NOV 75** (ROETOB) EXTERNAL TANK 1H19 T8 .51000-01 HO 2919.6 3989.0 PO .38900 .900 # (S) TH\WAH 5.000 ALPHA (4) = DEPENDENT VARIABLE HIHREF SECTION (1) TANK .0000 95.0000 67.5000 90.0000112.5000135.0000157.5000180.0000 PHI X/L . 1463 .1463 .000 .0137 .005 .0738 .010 .0459 .0382 ..040 .0280 .060 .0204 .0069 . 125 .0058 . 150 .0046 .175 .200 .250 .300 .325 .0032 .0048 *065Be4eeeeeeee .0017 .00120011 .0009 .375 .0009 .0008 .0013 .0024 .0005 .0004 .0015 .400 .425 .450 .0033 .0014 .0007****** .0012 ----.0009****** .475 .0013 .0022****** .0025 .500 .525 .550 .575 .0006 .0003 .0009 .0013 .0005 .0008 .0005 .0013 .0011 .001B****** .600 .625 .0027 .0010 .0010******* .0006 .0018 .650 ***** .0005 0000 .675 .0010******* .0011 .0020 .0011 700 750 .0009 .0008 .0019 .0003****** .0009 .0009 .0013 .0019 .0025 .800 .850 .0028 .0009****** ----.0003 .0014** .0016 .900 .0008 .935 .0001

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PAGE 162

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DATE 03 NOV 75 TABULATED SOURCE DATA - LACR N2-28 (1H19) IH19 T8 EXTERNAL TANK (RQETOB) ALPHA (5) = 10.000 HAW/HT(1) =.850 RN/L .36200 3009.6 HO SECTION (1) TANK DEPENDENT VARIABLE HYHREF PHI .0000 45.0000 67.5000 90.0000112.5000135.0000157.5000180.0000 X/L .000 . 1596 .1596 .005 .0025 .010 .0729 .020 .0409 .040 .0331 .060 .0245 .080 .0174 100 .0117 125 .0053 .150 .0046 .175 .0036 .200 .0053 .0021 .250 300 .0041 .0009***** .0015 350 375 .0023 .0010 .0012 .0010 .400 .0049 .0047 .0042 .0030 .0015 .0014 .0010 .0009 .425 .0009 .450 .0010 .0012 .0006 .475 .0037 .500 .0034 .8024444444 .0008 .0003****** .525 .550 .0004 .0019 .0007****** .575 .0005 .600 .0043 .0031++++++ .0012 .0008 .0007 .0006 .0004 .650 .0039 .0005****** .0005 .675

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PAGE 163

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DATE 03 NOV	75		TABULA	TED SOUR	CE DATA	TA - LACR N2-28 (IH19)									PAGE	164
				1H19	8T 8		EXT	ERNAL TA	ANK				(RQETG2)			
ALPHA (5)	= 10.C	000 H/	(S) THVW	= .	.900 R	N/L =	.36200	PO	• ;	3946.9	10	=	3009.6	но	*	.50000-01
SECTION (LITANK				DEPENDE	NT VARIA	BLE H/HRE	F								
PHI	.0000 4	+5.0000 B	57.500 0 9	0.000011	2.50001	35.000015	57.500018	0.0000								
X/L								. 1482								
.000 .005				.1482				.0023								
.010								.0678								
.020								.0380								
.040 .060								. 0308 . 0308								
.080								.0162			•					
.100								.0109								
.125								.0049 .0043								
.150 .175								.0034								
.200				.0049				.0019								
.250								*****								
.300			.0038	.0008*	44044	.0014	• •	****								
.325 .350						.0021		.0010								
.375						.0011		.0010								
.400	.0046	.0044	.0039	.0028	.0014	.0013	.0009	.0009								
.425 .450						.0009	.0011	.0008 .0006								
.475						.0005		በበሚሁ								
.500			.0031	.0022**	4664400	.0007	.0003**									
.525						0000	.0005**	+000								
.550 .575						.0009	ייפטטט.	.0005								
.600	.0040		.0029**	46464	.0011	.0007	.0006	.0005								
.625								.0004								
.650			.0036			.0005*	*****	.0004								
.675 .700			.0031	.0015	.0011	.0007*		.0001								
.750			.0025			.0007	.0005	.0007								
.200	.0054	.002	.0024	.0021	.0010	* 8000.	****	.0005								
.850 .900			.0028	.0015	.0006	.0008 .0004	.0001 •• .0003	.0006								
.935			.0020	.0013	.0000	.0007	.0505	.0005							,	
.974								.0005								

.974

PAGE 165 TABULATED SOURCE DATA - LACR N2-28 (1H19) **DATE 03 NOV 75** (ROETOB) IH19 TB EXTERNAL TANK .50000-01 ALPHA (5) == HAM/HT(3) * 1.000 3946.9 TO 3009.6 HO 10.600 RN/L SECTION (1) TANK DEPENDENT VARIABLE H/HREF PHI .0000 45.0000 67.5000 90.0000112.5000135.0000157.5000180.0000 X/L .1295 .0021 .000 .1296 .005 .010 .0594 .020 .040 .060 .0334 .0200 .090 .0193 100 .0095 .125 .150 .175 .0038 .0029 .èoo .0043 .0017 .250 .0034 .300 .000700000000 .325 .0013 .00:9 .0009 .0009 .0008 .400 .0011 .0008 .0040 .0039 .0035 .0025 .0012 .0008 .425 .0007 .450 .475 .0008 . 5010 .0005 .0028 500 525 550 .0028 .0019****** .0007 .0003* .0003 .0008 .0005** .575 .600 .625 .650 .0004 .0035 .0025****** .0010 .0006 ,0006 .0003 .0031 .0004* .00040006******** .700 .0027 .0013 .0010 .0000 .750 .800 .6022 .0005 .0006 .0048 .0031 .0019 .0009 .0007+0004 .0021 .850 .900 .00014 .0007 .0013 .0005 .0005 .0003 .0025 .0003 .935 .0004

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DATE 03 NOV 75
                             TABULATED SOURCE DATA - LACR N2-28 (1H19)
                                       THIS BEECTF5M4Y7WIII TO ORBITER LOWER FUSELAGE
                                                                                                       (QQEB03) ( 07 NOV 74 )
              REFERENCE DATA
                                                                                                   PARAMETRIC DATA
SREF = 2690.0000 SQ.FT.
                            XMRP
                                                                                                       .000
                                         .0000
                                                                                         BETA
                                                                                                              RN/L
LREF
    # 1290.3000 IN.
                            YMRP =
                                         .0000
                                                                                         BLTRIP #
                                                                                                       .000
                                                                                                              DELTAH =
BREF = 1290.3000 IN.
                            ZMRP
                                         .0000
                                                                                         MACH
                                                                                                     19,800
SCALE =
             .0060
ALPHA ( 1) = -10.000
                         MACH ( 1) =
                                        19.800
                                                 RN/L
                                                       = .36800
                                                                       PO
                                                                              # 4011.8
                                                                                            TO
                                                                                                   3009.6
                                                                                                                 HO
SECTION ( 1)BODY
                                           DEPENDENT VARIABLE Q-DOT
Y(BP)
            .0000117.0000
  X/L
    .025
          4.8975
    .050
          2,4026
    .075
          1.6717
    .100
          1.3738
    .125
          1,2502
    .150
           1.3567
    .175
          1.5448
    .200
.250
           1.5544
           1.3293
           1.1534
    .350
          1.0150
                    .4847
    .400
            .9169
                    .5282
    .450
            .7992
    .500
         .......
                    .4363
    .550
            .5770
    .600
            .4502
                    .2963
    .650
            .0421
    .700
            .1789
                    .2057
            .1149
    .750
    .800
            .0715
                    .1001
    .850
         *****
    .900
            .0056
                    .0816
    .950
         ****
```

ALPHA (2) = -5.000MACH (1) = 19.800 RN/L - .38200 PO 4022.3 TO 2959.6 HO .51000-01

SECTION (1)BODY DEPENDENT VARIABLE Q-DOT

Y(BP) .0000117.0000

1.0173

.0122

.0332

.0627

X/L .025 3.9228 .050 2.1974 .075 1.5130 .100 1,1509

.125

1.000

1.040

PAGE 186

.500

. 175

.51000-01

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PAGE 167
                              TABULATED SOURCE DATA - LACR N2-28 (IHI9)
DATE 03 NOV 75
                                                                                                             (QUEBO3)
                                         IH19 B22C7F5M4V7W111 TB ORBITER LOWER FUSELAGE
                                          19.800
                          MACH ( 1) **
                -5.000
ALPHA ( 2) =
                                             DEPENDENT VARIABLE Q-DOT
 SECTION ( 1)BODY
             .0000117.0000
Y(BP)
  X/L
    .150
           1.0509
           1.1915
    . 175
    .200
.250
            1.1435
             .9886
     .300
             .8140
             .6959
.5493
                      .3160
     .350
                      .3379
     .400
     .458
             .4664
     .500 ******
                      .2806
     .550
             .2692
             . 1475
                      .1361
     .650 *******
.700 .0172
             .0172
                      .0999
     .750 ******
     .800 ******
                      .0296
     .B50 *******
     .900 *******
                      .0245
     .950 ******
    1.000 4400448
                      1217
              .0247
    1.040
                                                                                                                                  .51000-01
                                                                                                                        HO
                                                                                                         3039.6
                                                                                      4068.2
                                                                                                  TO
                                                                           PO
                                                              .36500
                                                    RN/L
                   .000
                           MACH ( 1) =
                                           19.800
 ALPHA ( 3) =
                                              DEPENDENT VARIABLE Q-DOT
  SECTION ( 1)BODY
 Y(BP)
              .0000117.0000
   X/L
     .025
            4.2760
            1.6752
     .050
              .9803
     .075
     .100
              .6362
     .125
              .7631
     .150
             1.0356
             1.0982
     .175
     200
250
300
             1.0628
              .8584
              .6622
                      .3965
      .350
              .5421
                       .3776
     .400
              .3440
              .1320
      .450
      .500
                       .2858
              .0833
      .550
      .600
              .0223
                       .0149
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.650

.0054

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PAGE 168
                            TABULATED SOURCE DATA - LACR N2-28 (IH19)
DATE 03 NOV 75
                                                                                                   (QQEB03)
                                      THIS BEECTFSM4V7WIII TB ORBITER LOWER FUSELAGE
                .000
                        MACH ( 1) * 19.800
ALPHA ( 3) =
                                         DEPENDENT VARIABLE Q-DOT
SECTION ( 1)BODY
Y(BP)
           .0000117.0600
 X/L
.700 *******
                   .0918
    .750 .0117
    .800 +4+4
                   .0573
    .850 ******
   .900 ******
                   .0550
    ,950 *****
   1.000
         .0402
                   .0158
  1.040 #*****
                                                                                                                      .51000-01
                                                                                                = 3039.6
                        MACH ( 1) = 19.800 RN/L = .36200
                                                                           · 4029.4
                                                                                         TO
                                                                    PO
ALPHA ( 4) =
               5.000
                                          DEPENDENT VARIABLE Q-DOT
 SECTION ( 1)BODY
Y(BP)
            .0000117.0000
  X/L
    .025
          2.8541
            .8560
    .050
    .073
            .4236
    .100
            .5749
            .6378
    . 125
           .5605
.5932
    . 150
    .175
    .200
            .5191
    .250
            .3083
            .2427
    .300
            .1231
                    .3408
    .350
    .400
           .1067
                    .3197
    .450 ******
    .500 *******
                    .1446
          .0012
    .550
    .600 ******
                    .0735
    .650 ******
            .0182
                    .0770
    .700
    .755 ******
    800 ******
                    .0593
    .850 *******
                    .0960
```

.900 ****** .950 ******

1.000 1.040

.0096

.0133

TABULATED SOURCE DATA - LACE NO-28 (1H19) **DATE 03 NOV 75** (COEB03) THIS BESCAFEMANTHILL TO ORBITER LOWER FUSELAGE 3009.6 **4027.6** CT - .36900 19.800 RN/L MACH (1) = 10.000 ALPHA (5) = DEPENDENT VARIABLE Q-DOT SECTION (1)BODY .0000117.0000 Y(82) X/L .025 .050 .2199 .5192 .3521 .3390 .2969 .075 .100 .125 .150 .175 .2369 .2241 .200 .250 .300 .350 .400 .1433 .0444 .0475 .0263 .1843 .0033 .1402 .450 .0080 .500 ****** .0889 .550 ****** .0240 .600 .650 .700 .0405 .0039 .750 .0067 .800 .0066 .0165 .850 .900

.0009

.0317

*** 0195

.950

1.000 1.040 .0815

.0448

PAGE 169

.51000-01

PAGE 170 TABULATED SOURCE DATA - LACE N2-28 (1H19) DATE 63 NOV 75 (005804) (07 NOV 74) IH19 822C7F5M4V7W111 T8 ORBITER LOWER FUSELAGE PARAMETRIC DATA REFERENCE DATA .500 .000 RN/L BETA SREF = 2690.0000 SQ.FT. XMRP .6000 .030 .175 BLTRIP = DELTAH = LREF = 1290.3000 IN. YMRP .0000 MACH 19.800 BREF = 1290.3000 IN. ZMRP .0000 SCALE = .0060 - .51000-01 **2959.6** НΦ 19.800 RN/L = .37900 PO **3992.5** TO MACH (1) = ALPHA (1) = -10.000 DEPENDENT VARIABLE Q-DOT SECTION (1)BODY Y(BP) .0000117.0000 X/L .025 5.3178 .050 2.3382 .075 1.6063 .100 1.2864 . 125 1.0336 . 15% 1.2049 . 175 1.6692 .200 .250 1.7814 1.6100 .300 1.3790 .350 1.2731 .4991 .400 1.1453 .5746 1.0194 .450 .500 .0003 .5612 .7149 .550 .600 .4448 .5371 .650 .0624 .700 . 1829 .2776 .750 .1285 .800 .0588 .1880 .850 ****** .900 ****** .0873 .950 .0066 .0215******

PO

MACH (i) * 19.800 RN/L * .38000

DEPENDENT VARIABLE Q-DOT

4032.9

TO

.51080-01

= 2959.6

HO

SECTION (1)BODY Y(BP) .0000117.0000 X/L .025 4.3249 1.7929 .050 .075 1.3130 .100 .9832 .8048 .125

ALPHA (2) = -5.000

.0398

1.000

```
DATE 03 NOV 75
                                TABULATED SOURCE DATA - LACR N2-28 (1H19)
                                                                                                                                 PAGE 171
                                           THIS BESCRESHAVAWITT TO ORBITER LOWER FUSELAGE
                                                                                                                (QQE804)
ALPHA (2) =
                 -5.000
                            MACH ( 1) =
                                            19.800
 SECTION ( 1180DY
                                               DEPENDENT VARIABLE Q-DOT
Y(BP)
              .0000117.0000
  X/L
     . 150
              .9474
     .175
            1.2025
     .200
            1.3327
    .250
.300
.350
            1.1574
             .9646
             .8622
                      .4188
     .400
              .6916
                      .4149
     .450
              .5487
     -500
             .....
                      .3642
     .550
             .2907
             .1907
                      . 2594
     .650
             .0821
     .700
             .0486
                     .1359
    .750
.800
             .0337
             .0492
                      .0490
     .850
    .906
             .0286
                      .0422
    .950
   1.000 *******
                      .0258
   1.040
             .0028
ALPHA ( 3) =
                           MACH ( 1) =
                                            19.800
                                                     RN/L
                                                                                       4013.6
                                                                                                    TO
                                                                                                               3039.6
                                                                                                                                     .51000-01
 SECTION ( 1)BODY
                                               DEPENDENT VARIABLE Q-DOT
Y(BP)
             .0000117.0000
  X/L
           3.3929
1.5297
    .025
    .050
    .075
             .8894
    .100
             .6616
    .125
             .6966
    . 150
             .7425
    .175
             .8499
    .200
.250
.300
             .8719
             .6996
             .4966
             .3417
                      .3389
    .400
             .2243
                      .3346
    .450
             .1150
    .500
         -----
                     .2127
    .550
             .0417
```

.600 ******

.650 ******

.1042

and the second of the contract

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PAGE 172
                             TABULATED SOURCE DATA - LACE N2-28 (1H19)
DATE 03 NOV 75
                                                                                                         (002804)
                                        IP'S BESCOFFMANTHII TO ORBITER LOWER FUSELAGE
                         MACH ( 1) = 19.800
                 .000
ALPHA (3) =
                                            DEPENDENT VARIABLE Q-DOT
 SECTION ( 1)BODY
             .0000117.0000
  X/L
.700
                     .0491
     .750
             .0080
     .800 ******
                     .0661
     .850 ******
     .900 *******
                     .0749
     .950 ******
             .0210
                     .0133
   1.000
   1.048 *****
                                                                                                                              .51000-01
                                                                                                        2969.6
                                         19.800
                                                   RN/L
                          MACH ( 1) =
                5.000
ALPHA ( 4) =
                                             DEPENDENT VARIABLE Q-DOT
 SECTION ( 1)BODY
             .0000117.0000
     .025
            2.3607
     .050
            1.0269
              .5484
     .075
     .100
              .5211
              .5518
     .125
              .5485
     . 150
     .175
              .5126
              .4840
     .250
              .2861
              . 1933
      .300
                      .2621
     .350
              .0888
     .400
              .0616
                      .2717
     .450
                      .1767
     .500
     .550
              .0013
                      .0668
      .600
              .0013
              .0552
      .650
                      .0472
      .700
              .0029
      .750
      .BDD ******
                      .0614
      B50
                      .0966
      .980
              .0188
```

Y(BP)

Y(BP)

.950 .0295 1.000 .0171

.0460

1.040 .0329

DATE 03 NOV 75 ALPHA (5: = 10.000 SECTION (1)80DY Y(BP) .0000117.0000 X/L .025 1.0136 .4590 .050 .075 .3289 .100 .2455 . 125 .2332 .1568 .1437 . 175 .200 .250 .300 .350 .0748 .0259 .0187 .1215 .400 ***** .1254 .450 ****** .500 .0070 .0740 .550 **** .600 .004900000000 .650 **** .700 .0159 .0031 .750 ******* .800 ****** .0227 .850 ****** .900 .0121 .0584 .950

I.000 *****

.0316

1.040

.0272

PAGE 173

THIS 822C7F5M4V7WIII TO ORBITER LOWER FUSELAGE

Company of the Compan

TABULATED SOURCE DATA - LACR N2-28 (IH19)

(QQE904)

and the companies of th

Na Markin da and an and an anti-companies of the companie

ALPHA (5) = 10.000 MACH (1) > 19.800 RN/L = .36900 PO = 3967.9 TO = 2989.6 HO = .51000-01

ECTION (1)BODY DEPENDENT VARIABLE Q-DOT

REPRODUCIBILITY (

 \mathbf{z}

OF FO POOR

.050

.075 .100

.125

1.4293 .9846

.7560

.5686

PAGE 174

```
( 07 NOV 74 )
                                                                                                          (QQEB05)
                                                                  ORBITER LOWER FUSELAGE
                                        IH19 822C7F5M4V7W111
                                                                                                      FARAMETRIC DATA
              REFERENCE DATA
                                                                                                                                 .500
                                                                                           BETA P
                                                                                                           .000
                                                                                                                  RN/L
                             XMRP
                                           .0000
SREF = 2690.0000 SQ.FT.
                                                                                                           .000
                                                                                                                  MACH
                                                                                                                              19.800
                                           .0000
I.REF
         1290.3000 IN.
                             YMRP
BREF
         1290.3000 IN.
                             ZMRP
                                           .0000
     *
SCALE #
             .0060
                                                                                                                                .51000-01
                                                                                                         2959.6
                                                                                                                     HO
                                                                                  4008.3
                                                                                               TO
                                          19.800
                                                   RN/L
                                                         - .38000
                                                                         PO
                         MACH ( 1) =
ALPHA (1) = -10.000
                                             DEPENDENT VARIABLE Q-DOT
SECTION ( 1)BODY
Y(BP)
            .0000117.0000
  X/L
    .025
           3.3285
    .050
           1.2470
    .075
             .7815
    .100
             .5901
             .4520
    . 125
    .150
             .2157
    .175
             .2790
             .2702
    .200
     .250
             .1920
    .300
             .1150
    .350
                     .1841
             .1271
     .400
             .1382
                     .1689
     .450
             .1139
                     .1765
     .500
             .2894
     .550
             .1639
             .1382
     .600
                     .1140
     .650
             .13:3
     .700
                     .1034
     .750
             .1053
                     .0692
     .800
             .1208
     .850
          ......
             .1031
                     .0960
     .900
     .950
             .1176
                     .0295
    1.000
             .0485
    1.040
             .0763
                                                                                                                                .51000-01
                                                                                                                     HO
                                                                                   4004.8
                                                                                                TO
                                                                                                          2959.6
ALPHA ( 2) # -5.000
                                          19.800
                                                   RN/L
                                                         - .38000
                          MACH ( 1) =
                                             DEPENDENT VARIABLE Q-DOT
 SECTION ( 1)BODY
Y(BP)
             .0000117.0000
     .025
            3.6447
```

```
DATE 03 NOV 75
                                TABULATED SOURCE DATA - LACR N2-28 (1H19)
                                                                                                                                   PAGE 175
                                           IH19 B22C7F5M4V7W111
                                                                       ORBITER LOWER FUSELAGE
                                                                                                                  (QQEB05)
ALPHA ( 2) = -5.000
                           MACH ( 1) = 19.800
 SECTION ( 1)BODY
                                                DEPENDENT VARIABLE Q-DOT
(PS)Y
             .0000117.0000
  X/L
             .3572
.3685
     . 150
    .175
.200
.250
             .3205
             .2875
    .300
.350
.400
             .2076
             .2241
                      .3125
             .1642
                      .2849
     .450
             .1297
     .500
             ****
                      .2941
    .550
             .1761
    .600
             .1483
                      .1771
     .650
          ****
    .700
             .0921
                      . 1575
    .750
             .1401
    .860
             .1373
                      .1332
    .850
          . 0066664
    . 70
             .0601
                      .1278
    .5,50
             .1156
   1.000
             .0583
                      .0270
   1.040
             .0383
ALPHA ( 3) =
                   .000
                           MACH ( 1) =
                                            19.800
                                                                                                                 3039.5
                                                                                                                                        .50000-01
 SECTION ( 1)BODY
                                                DEPENDENT VARIABLE Q-DOT
Y(BP)
             .0000117.0000
  X/L
            4.3841
1.9432
    .025
    .050
    .075
            1.3941
    .100
            1.0492
    .125
             .7970
    .150
             .5533
    .175
             .5530
     .200
             .4356
    .250
.300
.350
             .4293
             .2927
             .3126
                      .4927
    .400
             .2863
                      .4480
             .2600
    .450
    .500
                      .4548
    .550
             .0482
    .600
                      .3089
```

.650 ******

```
PAGE 176
                              TABULATED SOURCE DATA - LACR N2-28 (1H19)
DATE 03 NOV 75
                                                                                                             (QQEB05)
                                                                    ORBITER LOWER FUSELAGE
                                         IH19 B22C7F5M4V7W111
                          MACH ( 1) = 19.800
                  .000
ALPHA ( 3) =
                                              DEPENDENT VARIABLE Q-DOT
 SECTION ( 1)BODY
Y(BP)
             .0000117.0000
  X/L
                     .2811
     .700
             .0999
     .750
             .1195
             .2080
                      .2128
     .800
     .850 *****
                      .2201
             .1644
     .900
             .1411
     .950
                      .0353
   1.000
             .1070
             .1285
    1.040
                                                                                                                                    .51000-01
                                                                                                            3009.6
                                                                                                  TO
                                                                                      3975.0
                           MACH ( 1) = 19.800 RN/L = .36400
ALPHA ( 4) = 5.000
                                              DEPENDENT VARIABLE Q-DOT
 SECTION ( 1)BODY
             .0000117.0000
 Y(BP)
  X/L
     .025 5.0126
     .050
            2.3050
     .075
            1.6912
     .100
.125
.150
.175
.200
.250
.350
            1.3357
            1.0603
              .6924
              .6798
              .7543
              .5297
              .4664
                      .6843
              .3732
              .3643
                       .7424
     .450
.500
             ****
                       .6565
      .550
              .2629
      .600
              .2641
                       .5815
      .650
.700
.750
              .....
              .2568
                       .4631
              .2396
```

.4025

.3186

.1101

.1774

.2234

. 1946

.1110

.1013

.800

.850

.900 .950 1.000

1.040

```
DATE 03 NOV 75
                                                                                                                    (QQEB05)
                                                                        ORBITER LOWER FUSELAGE
                                            IH19 B22C7F5M4V7WIII
                                                                                                                                       - .5:000-01
                                                                                                                  2959.6
                                                                                                       TO
                                                                                       4011.8
                            MACH ( 1) = 19.800 RN/L = .38100
ALPHA (5) = 10.000
                                                DEPENDENT VARIABLE G-DOT
 SECTION ( 1)80DY
              .0000117.0000
Y(BP)
  X/L
     .025
            6.3462
     .050
            3.0553
            2.3341
            1.8976
     .100
            1.5348
     . 125
     .150
     .175
             1.1256
             1.1217
     .250
.300
.350
.400
.450
              .8987
.8034
              .7275
.7103
                      1.1221
                      1.2809
              .6126
           ......
                      1.2924
     .550
              .6091
              .5581
                      1.0899
     .650
.700
                        .9520
              .4982
              .4986
.4976
     .750
     .800
.850
                        .8138
             ***
              .3828
.3300
.3064
     .900
                        .6623
```

TABULATED SOURCE DATA - LACE N2-28 (1H19)

PAGE 177

.950 1.000 .3638 1.040 .2557

DATE 03 NOV 75 TABULATED SOURCE DATA - LACR N2-28 (IH19) THIS B22C7F5M4V7WIII ORBITER LOWER FUSELAGE (dQLB0S) REFERENCE DATA PARAMETRIC DATA SREF = 2590.0000 Su.FT. **YMRP** .0000 BETA .000 LREF = 1290.3000 IN. BLTRIP = .000 YMRP .= .0000 BREF = 1290.3000 IN. ZMRP .0000 SCALE = .0060 ALPHA (L) = -10.000 3019.6 MACH (1) = 19.800 RN/L 4010.1 SECTION (1)BODY DEPENDENT VARIABLE Q-DOT Y(BP) .0000117.0000

.025 3.3573 .050 1.1601 .075 .7762 .100 .5376 125 4503 150 .3929 . 175 .3486 .200 .250 .300 .350 .3366 1787 . 1836 .2323 .1944 .2193 .1325 .450 .1297 .500 1660 .1358 .550 .1392 .600 .0943 .1143 .650 .700 .3794 .1053 .1350 .750 .0904 .800 .1170 .1105 .850 **** .0730 .900 .0761 .0620 .950 1.000 .0040 1.040 .0516

.51000-01 ALPHA (2) = -5.000 MACH (1) = 19.800 RN/L 3019.6

SECTION (1)BODY

.0000117.0000

DEPENDENT VARIABLE Q-DOT

Y(BP) X/L

.025 3.8254 .050 1.4866 .075 1.0909 .100 .7238 .6043 .125

PAGE

RN/L

NACH

1 07 NOV 74)

178

.500

.51000-01

```
DATE 03 NOV 75
                                   TABULATED SOURCE DATA - LACE NZ-ZB (IH19)
                                                                                                                                                       PAGE 179
                                                 . 1H19 822C7F5M4Y7W111
                                                                                  ORBITER LOWER FUSELAGE
                                                                                                                                    (QQE805)
ALPHA ( 2) =
                                MACH ( 1) = 19.800
  SECTION ( 1180DY
                                                       DEPENDENT VARIABLE Q-DOT
Y(BP)
                .0000117.0000
  X/L
.150
.175
.200
.250
.300
.350
                .4539
.4067
                .3740
                .3063
.2078
                . 1995
                .1671
.1598
                          .2667
      .450
     .500
.550
.600
               ***
                          .2479
                .1166
                .1489
                          4155.
      .650
     .700
.750
                .1283
                         .1566
               .0735
.1127
     .800
.850
.900
                          .1347
                .0081
               .0932
.0075
                          -1167
     .950
    1.000
                .0623
                          .0277
                .0360
ALPHA-( 3) -
                  .000
                               MACH (1) =
                                                   19.800
                                                                                                      3966,2
                                                                                                                                 3039.6
                                                                                                                                                             .50000-01
 SECTION ( 1)BODY
                                                       DEPENDENT VARIABLE Q-DOT
YEBPI
               .0000117.0000
  X/L
     .025
             4.1611
1.8691
1.2751
     .050
     .075
               .9461
.7729
     .100
     .125
     . 150
    .175
.200
.250
.300
.350
               -5635
               .4643
.3545
.3129
               .2814
                         .4502
               .2590
.2392
.1980
                         4188
    .450
.500
.550
                         .4115
     .600
               .2177
                         .3178
               4460
```

```
TABULATED SOURCE DATA - LACR N2-28 (1H19)
                                                                                                                      PAGE 180
DATE 03 NOV 75
                                       1H19 822C7F5M4V7W111
                                                              ORBITER LOWER FUSELAGE
                                                                                                       (QQEB05)
                         MACH ( 1) = 19.800
ALPHA ( 3) =
 SECTION ( 1)BODY
                                           DEPENDENT VARIABLE G-DOT
Y(BP)
            .0000117.0000
 X/L
.700
.750
           .1417
.1179
    .800
            0450
                    .2095
    .850
         .0061
    .900
                    .2094
    .950
            1062
   1.000
                    .0244
   1.040
            .0367
                                                                                                                            .52000-01
ALPHA ( 4) *
              5.000
                         MACH ( 1) =
                                        19.800
                                                 RN/L
 SECTION: ( 11BODY
                                           DEFENDENT VARIABLE Q-DOT
Y(BP)
            .0000117.0000
 X/L
.025
.050
          4.9701
2.e235
    .075
           1.6285
```

.100 .150 .150 .175 .250 .250 1.3083 1.0599 .8524 .7746 .6379 .5552 .4977 .4463 .3692 .7050 .7500 450 500 550 600 650 700 .7678 ----.2897 .3212 .5553 2025 0019 2005 2005 1181 .4430 .800 .850 .950 .950 .3975 .3291 .1484 .1554 .1703 1815. 1.040



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.510000-01

DATE 03 NO	V 75	•	TABULATED SOURCE DATA - LACE NE-28 (IHI9)											
	****			IH19 B22C7F5	M4V7W111	ORBITER LO	WER FL	SELAGE			COEBOS			
 ALPHA (5)	* 10.	.000 MACH	(1) =	19.800 RN	/L = .380	000 PO	: 44"	4006.5	70	m 55	59.5			
SECTION (1180DY			DEPENDEN	T YARTABLE (2-DOT								
Y(BP)	.00001	17.0000	•											
X/L 0250 01070 11050	5.16769 2.97760 2.97760 1.59403 1.1327 1.0560 1.7550 1.7550 1.765	1.1180 1.2512 1.3047 1.0464 .8949 .7828 .6927												

		and the second s								121 11 1	NUV	74)
			IHIB BSS	C7F5H4V7W111 T8 ORBIT	er fusi	ELAGE	CHINE	•	(QQEC(PARAMETRIC	100		
	REFERENCE I	ATAC									- '	.500
1	SREF = 2690.0000 SQ.FT. LREF = 1290.3000 IN. BREF = 1290.3000 IN.	YMRP = ZMRP =	.0000 .0000 .0000	•				BETA BLTRIP H HACH	.000 .000 .000 .000	RN/L = DELTAH =	4	.175
	SCALE * .0060	****	19.800	RN/L = .36800	PO	98	4011.8	TO	≈ 3009.8	HO	æ	.51000-01
	ALPHA (1) = -10.000	HACH (1) *		NOENT VARIABLE Q-BOT						• •		
	SECTION (1) CHINE		DEPE	MORNI ANUINDER GEN				<i>'</i> .				
	ANGLE 30.0000											
. :	X/C .100 ******* .150 1.5576 .200 .9050	÷							•			
	ALPHA (2) = -5.000	HACH (1) =	19.800	RN/L = .38200	PO	•	4082.3	TO	≥ 2959.6	HO	rs.	.51000-01
			DEP	ENDENT VARIABLE Q-DOT								
	SECTION (I) CHINE	•									•	
	ANGLE 30.0000			•								
	X/C .100 ******* .150 1.3055 .200 .7224			•	,							.51000-01
	ALPHA (3) = .000	"MACH (1) =	19.800	RN/L = .36500	PØ	B	1,065.2	10	× 3039.8	; HO	**	*21000-01
	SECTION (1) CHINE		DEP	ENDENT VARIABLE Q-DOT			•	-				
	ANGLE 30.0000			•						•		• .
	X/C .100 ******* .150 1.2403 .200 .6086			•						•		
	ALPHA (4) = 5.000	MACH (1) *	19.800	RN/L = .36200	PU	. *	4029.4	TO	= 3039.	в но	-	.51000-01
	SECTION C LICHINE			ENDENT VARIABLE Q-DOT		•			•			:
	ANGLE 30.0000					•	• • •		• :			
	X/C .100 ******* .150 .8545 .200 .4249	•			, .	•		,				

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DATE 03 NOV 75

TABULATED SOURCE DATA - LACR N2-28 (1H19)

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THIS BESCTFSMAVTHILL TO ORBITER FUSELAGE CHINE

(005003)

MACH (1) = 19.800 ALPNA (5) = 10.000 **4 .36900 ■**

SECTION (I) CHINE DEPENDENT VARIABLE Q-DOT

ANGLE 30.0000

.5567 .2675

X/C .100 * .150 .200

X/C .100 .150 .200

.8921 115

THIS BEEC7F5M4V7WIII TB ORBITER FUSELAGE CHINE

ref		DATA

SREET RESPONDED SQLTT	HEFERENC	E UAIA		•		7.	ARAMETRIC	DATA	
SECTION (1)CHINE DEPENDENT VARIABLE Q-DOT ANGLE 30.0000 X/C .150 ********* .150 1.3801 .200 .7980 ALPHA (2) * -5.000 MACH (1) * 19.800 RN/L * .38000 PO * 4032.9 TO * 2989.6 HO * .51000-01 ANGLE 30.0000 X/C .100 ******** .150 1.3675 .200 .5718 ALPHA (3) * .000 MACH (1) * 19.800 RN/L * .35000 PO * 4013.6 TO * 3039.6 MO * .51000-01 ANGLE 30.0000 X/C .100 ******* .150 1.3675 .200 .5718 ALPHA (3) * .000 MACH (1) * 19.800 RN/L * .35000 PO * 4013.6 TO * 3039.6 MO * .51000-01 X/C .100 ******* .150 1.1051 .200 .5941 ALPHA (4) * 5.000 MACH (1) * 19.800 RN/L * .37900 PO * 4020.6 TO * 2989.6 HO * .51000-01 ALPHA (4) * 5.000 MACH (1) * 19.800 RN/L * .37900 PO * 4020.6 TO * 2989.6 HO * .51000-01	LREF = 1290.3000 IN. BREF = 1290.3000 IN.	YMRP =	.0000			DLTRIP =	.030		
ANGLE 30.000 X/C .100 ***sac*** .150 1.3801 .200 .7980 ALPHA (2) = -5.000		PIACH ([) *	19.800 RN/L = .37900	P0 1	3992.5	TO , #	2959.6	Hō ==	.51000-01
X/C	SECTION (I)CHINE		DEPENDENT VARIABLE Q-DOT					•	
.100	ANGLE 30.0000								
SECTION (I)CHINE DEPENDENT VARIABLE Q-DOT ANGLE 30.0000 X/C .100 ******* .150 1.3075 .200 .5718 SECTION (I) HOAM 000 MACH (I) = 19.800 RN/L = .38000 PO = 4013.8 TO = 2039.8 HO = .51000-01 SECTION (I)CHINE DEPENDENT VARIABLE Q-DOT X/C .100 ****** .150 1.1051 .200 .5491 ALPHA (4) = 5.000 MACH (I) = 19.800 RN/L = .37900 PO = 4020.6 TO = 2689.6 HO = .51000-01 SECTION (I)CHINE DEPENDENT VARIABLE Q-DOT	.100 ******** .150 1.3801								
SECTION (I)CHINE DEPENDENT VARIABLE Q-QOT ANGLE 30.0000 X/C .100 ******** .150 1.3075 .200 .5718 ALPHA (3) = .000 MACH (1) = 19.800 RN/L = .35000 PO = 4020.6 TO = 2569.6 HO = .51000-01 SECTION (1)CHINE DEPENDENT VARIABLE Q-DOT ANGLE 30.0000 X/C .100 ******* .150 1.1051 .200 .5991 ALPHA (4) = 5.000 MACH (1) = 19.800 RN/L = .37900 PO = 4020.6 TO = 2569.6 HO = .51000-01 SECTION (1)CHINE DEPENDENT VARIABLE Q-DOT	ALPHA (2) = -5.000	MACH (1) m	19 800 PN/1 - 2000	50			<u>.</u>	•	
ANGLE 30.0000 X/C .100 ******* .150 1.3075 .200 .5718 ALPHA (3) * .000 MACH (1) = 19.800 RN/L = .35000 PO = 4013.6 TO = 3035.6 HO = .51000-01 SECTION (1)CHINE DEPENDENT VARIABLE Q-DOT ANGLE 30.0000 X/C .100 ******* .150 1.1051 .200 .5491 ALPHA (4) = 5.000 MACH (1) = 19.800 RN/L = .37900 PO = 4020.6 TO = 2569.6 HO = .51000-01 SECTION (1)CHINE DEPENDENT VARIABLE Q-DOT				ru s	* *032.9	10 #	2969.6	HO =	.51000-01
X/C .100 ******* .150 1.3075 .290 .5718 ALPHA (3) * .000 MACH (1) * 19.800 RN/L * .35000 P3 * 4013.6 T0 * 3035.6 M0 * .51000-01 SECTION (1)CHINE DEPENDENT VARIABLE Q-DOT ANGLE 30.0000 X/C .100 ****** .150 1.1051 .200 .5491 ALPHA (4) * 5.000 MACH (1) * 19.800 RN/L * .37900 P0 * 4020.6 T0 * 2989.6 H0 * .51000-01 SECTION (1)CHINE DEPENDENT VARIABLE Q-DOT			DEPENDENT VARIABLE Q-DOT			•	•		
.150 1.3075 .290 .5718 ALPHA (3) * .000 MACH (1) * 19.800 RN/L * .35000 PO * 4813.8 TO * 3039.6 HO * .51000-01 SECTION (1)CHINE DEPENDENT VARIABLE Q-DOT ANGLE 30.0000 X/C .100 ******* .150 1.1051 .200 .5491 ALPHA (4) * 5.000 MACH (1) * 19.800 RN/L * .37900 PO * 4020.6 TO * 2989.6 HO * .51000-01 SECTION (1)CHINE DEPENDENT VARIABLE Q-DOT							•		
.150 1.3075 .290 .6718 ALPHA (3) * .000 MACH (1) * 19.800 RN/L * .36000 PO * 4013.6 TO * 3039.6 HO * .51000-01 SECTION (1)CHINE DEPENDENT VARIABLE Q-DOT ANGLE 30.0000 X/C .100 ******** .150 1.1051 .200 .5491 ALPHA (4) * 5.000 MACH (1) * 19.800 RN/L * .37900 PO * 4020.6 TO * 2959.6 HO * .51000-01 SECTION (1)CHINE DEPENDENT VARIABLE Q-DOT									
ALPHA (3) * .000 MACH (1) = 19.800 RN/L = .35000 PO = 4013.6 TO = 3039.6 HO = .51000-01 SECTION (1)CHINE DEPENDENT VARIABLE Q-DOT X/C .100 ******** .150 1.1051 .200 .5491 ALPHA (4) = 5.000 MACH (1) = 19.800 RN/L = .37900 PO = 4020.6 TO = 2959.6 HO = .51000-01 SECTION (1)CHINE DEPENDENT VARIABLE Q-DOT	.150 1.3075								
SECTION (1)CHINE DEPENDENT VARIABLE Q-DOT ANGLE 30.0000 X/C .100 ******** .150 1.105! .200 .5491 ALPHA (4) = 5.000 MACH (1) = 19.800 RN/L = .37900 PO = 4020.6 TO = 2959.6 HO = .51000-01 SECTION (1)CHINE DEPENDENT VARIABLE Q-DOT	.200 .6718								
SECTION (1)CHINE DEPENDENT VARIABLE Q-DOT ANGLE 30.0000 X/C .100 ******* .150 1.1051 .200 .5491 ALPHA (4) = 5.000 MACH (1) = 19.800 RN/L = .37900 PO = 4020.6 TO = 2959.6 HO = .51000-01 SECTION (1)CHINE DEPENDENT VARIABLE Q-DOT	ALPHA (3) * .000	MACH (1) =	19.800 RN/L = .36000	P(1 at	U#17.6	70° -	7070 0		C1566 A1
ANGLE 30.0000 X/C .100 ******* .150 1.1051 .200 .5491 ALPHA (4) = 5.000 MACH (1) = 19.000 RN/L = .37900 PO = 4020.6 TO = 2969.6 HO = .51000-01 SECTION (1)CHINE DEPENDENT VARIABLE Q-DOT	SECTION (I) CHINE			. •	101010		2032.0	LIO. 13	-21000-01
X/C .100 ******** .150 1.105; .200 .5491 ALPHA (4) = 5.000 MACH (1) = 19.800 RN/L = .37900 PO = 4020.6 TO = 2969.6 HO = .51000-01 SECTION (1)CHINE DEPENDENT VARIABLE Q-DOT			DEL ENDERT TARTABLE Q-DQ1						
SECTION (1)CHINE DEPENDENT VARIABLE Q-DOT	X/C .100 #******* .150 1.1051								
SECTION (1)CHINE DEPENDENT VARIABLE Q-DOT	ALPHA (4) = 5.000	MACH [13 m	19.800 RN/L = .379nn	P0 =	นกวล ค	TO -	5020 G	f 1/2h	
an month this port 6-001	SECTION (LICHINE				7464.0	1Å =	3.6 063	HO #	.51000-01
	ANGLE 30.0000		PELEINDENI ANNIABLE G-DOT						

DATE 03 NOV 75

TABULATED SOURCE DATA - LACR N2-28 (1HA9)

PAGE 185

1H19 B22C7F5M4V7W111 TB ORBITER FUSELAGE CHINE

ALPHA (5) = 10.000 MACH (1) = 19.800 RN/L = .35900 = 3967.9 # .5100D-01

SECTION (I)CHINE

DEPENDENT VARIABLE Q-DOT

ANGLE 30.0000

X/C .100 .150 .200

.4813 .1941

PAGE 188 TABULATED SOURCE DATA - LACR N2-28 (1H19) **DATE 03 NOV 75** (07 NOV 74) (QQECQ5) ORBITER FUSELAGE CHINE 1H19 822C7F5M4V7W111 PARAMETRIC DATA REFERENCE DATA -500 BETA .000 RN/L SREF = 2690.0000 SQ.FT. XHRP = .0000 BLTRIP = .000 MACH 18.800 YMRP .0000 LREF = 1295.3000 IN. BREF = 1299.3000 IN. ZMRP .0000 SCALE = .0060 .51000~01 2559.6 HO 400B.3 .38000 ALPHA (1) = -10.000MACH (1) * 19.800 RN/L DEPENDENT VARIABLE Q-DOT SECTION (DICHINE ANGLE 30.0000 X/C .1009455 . 150 .200 .3515 .51000-01 2959.6 4004.8 TO ALPHA (2) = -5.000 MACH [1] # 19.800 RN/L SECTION (1) CHINE DEPENDENT VARIABLE Q-DOT ANGLE 30.0000 X/C .100 ******* . 150 .9909 .4800 .200 .50000-01 3039.6 .35800 ALPHA (3) = .000 MACH (1) = 19.800 RN/L SECTION (I) CHINE DEPENDENT VARIABLE Q-DOT ANGLE 30.0000

ANGLE 30.0000 X/C

.100 ******* .150 1.4725 .200 .6498

ALPHA (4) = 5.000 MACH (1) = 19.800 RN/L = .36400 PO = 3975.0 TO = 3009.6 HO = .51000-01

SECTION (1) CHINE DEPENDENT VARIABLE Q-DOT

ANGLE 30.0000

.100 ******* .150 1.7318 .200 .8655

DATE 03 NOV 75

TABULATED SOURCE DATA - LACE NE-28 (1H19)

PAGE 187

ALPHA (5) = 10.000

TH19 B22C7F5M4V7W111

ORBITCH FUSELAGE CHINE

* 4011.8

(QQECD5)

SECTION (LICHINE

19.800 RN/L = .38100 DEPENDENT VARIABLE Q-DOT

.51000-01

ANGLE 30.0000

%/C -100 *******

.15D .200

MACH () m

DATE 03 NOV 75	TABULATED	SOURCE D	ATA - LA	CR N2-26	((IWIA)								MAL	en 1
		1H10 855	:7F5M4V7	4111	ORBITE	R FUSE	LAPE	CHINE			COOECO		NCV	74)
REFERENCE DA	ATA									PA	RAMETRIC	DATA		
SREF = 2690,0000 SQ.FT. LREF = 1290,3000 IN. BREF = 1290,3000 IN.	XMSP o YMRP = ZMRP =	.0000 .0000 .0000							BETA = BLTRIP =		.000	HACH W		.500 19.800
SCALE = .0060 ALPHA (1) = -10.000	HACH (1) =	19.800	RN/L	= .36:	500	PO	-	4010.1	TO	-	3019.6	НО	•	.51000-01
SECTION (1) CHINE		DEPE	NDENT VA	RIABLE (דסם-ב									
ANGLE 30,0000 . X/C .100 ******* .150 .9060														
.200 .3764			****	_ 75		PO	•	3999.5	TO	•	3019.6	HO		.51000-01
ALPHA (2) = -5.000	MACH (1) =	19.000	RN/L	= .35		FU	-	255514						
SECTION (1) CHINE		CEPE	NOENT Y	RIABLE	וטעי-טטו									
ANGLE 30.0000														
X/C .100 ******* .150 1.1324 .200 .4546 ALPHA (3) = .000	MACH (1) =		RN/L	a .35		P0	14	3966.2	۵۲	100	3039.6	но	#	.50000-01
SECTION (1) CHINE		DEP	V TMBCME	ARIABLE	Q-DOT									
ANGLE 30.0000 X/C .100 ******* .150 1.2958 .200 .6308 ALPHA (%) = 5.000	MACH (1) *		RN/L	= .3		PO	*	4018.8	: то	×	2909.6	: НО	9	.52000-01
SECTION (1)CHINE		5 2.												
ANGLE 30.0000			•											•
x/C .100 ******* .150 1.7418 .200 .9223														

DATE 03 NOV 75

TABULATED SOURCE DATA - LACR N2-28 (IHI9)

PAGE 188

IH19 822C7F5M4V7W111

ORBITER FUSELAGE CHINE

= 4008.5

(QQECOB)

ALPHA (5) = 10.000

MACH (1) = 19.800 RN/L = .38000

2959.6

10-0001Z. ·

SECTION (I) CHINE

DEPENDENT VARIABLE Q-DOT

ANGLE 30.0000

X/C .100 ****** .150 2.2976 .200 1.4025

REPRODUCIBILITY OF THE ORIGINAL PAGE IS POOR

(QQEUD3)

1419 822C7F5M4V7W111 TB ORBITER UPPER FUSELAGE

REFERENCE DATA DARAMETRIC DATA

HEFERENCE DATA	A				þ	ARAMETRIC	DATA	
SREF = 2690.0000 SQ.FT. LREF = 1290.3000 IN. BREF = 1290.3000 IN. SCALE = .0060	XMRP = .00 YMRP = .00 ZMRP = .00	00			BETA = BLTRIP = MACH =			500 175
ALPHA (1) = -10.000 MA	CH (1) = 19.8	00 RN/L =	.36800 PO	= 4011.8	TO =	3009.6	HO = .5	1000-01
SECTION (1)BODY	C	EPENDENT VARIA	BLE Q-DOT					
X/L .1700 .3000	.4000 .4250	.5000 .6000	.7000 .8250					
フ(NL) 375.000 ******* 400.000	.0290 .3987	.2511 .0134	.0499					
485.000 .5228 465.000	.5659 ***	.3245	.2385					
501.000 4.0136 .0796	.5944	.6750 .0328	.4978					
ALPHA (2) = -5.000 MA(CH ()) * 19.8	00 RN/L =	.38200 PO	* 4022.3	TO =	2959.6	HO = .51	1000-01
SECTION (1)BODY	מ	EPENDENT VARIAE	OLE Q-DOT					
X/L .1700 .3000	.4000 .4250	.5000 .6000	.7000 .8250					
Z(WL) 375.000 ****** 400.000	.0117	.2036*****	.0521					
425.000 .4454 465.000		.2426	.2852					
501.000 2.7837******	. 3661	.3782 .0161	.4047					
ALPHA (3) # .000 MAG	CH (1) = 19.8	00 RN/L =	.36500 PO	• 4066.2	TO =	3039.6	HO = .51	000-01
SECTION (1)BODY	0	EPENDENT VARIA	LE Q-DOT					
X/L .1700 .3000	.4000 .4250	.5000 .6000	.7000 .8250					
Z(HL) 375.000 ******* 400.000	.0149 .3904	.0785******	. 0865					
425.000 .6263 465.000		.2536	. 1351					
501.000 5.7929****	. 0934	.2481 *******	.1514					



DATE 03 NO	V 75		TABULA	TED SOU	RCE DAT	A - LACR	NS-58 (II	H19)							PAGE	191
				IHI	9 82207	7F5M4V7W11	11 T3 OR	BITER UP	PER F	USELAGE			(QQEU03	3)		
ALPHA (4)	= 5.	000 M	ACH (1)	= 19	.800	RN/L ₽	.36200	PO		4029.4	то		3039.6	но		.51000-01
SECTION (118004				DEPEND	ENT VARIA	ABLE Q-DO	Г								
X/L	.1700	.3000	.4600	.4250	.5000	.6000	.7000	.8250								
Z(WL) 375.000 400.000	a	*****	.0005	0707	.1663	\$404k3504	.0466					•				
425.000 465.000		.3885	.2814	.2393	*****	.1707	.0861									
501.000	3.7186	.0832	.2971		.2084	46489669	.1515	.0184						•		
ALPIA (5)	= 10.	M 000	ACH (;)	u 19	.800	RN/L =	.36900	PO	*	4027.6	TO	2	3009.6	HO	•	.51000-01
SECTION (118004				DEPEND	ENT VARIA	BLE Q-DOT	ŗ								
X/L	.1700	.3000	.4000	.4250	.5000	.6000	.7000	.0250			•					
2(WL) 375.000 400.000	4 4		.0145	.2785	. 1824	.0249	.0548				-					•
425.000 465.000		.3082	.1693		*****	.2005	.0584			٠						
501.000	1.3777	.0399	. 1973		.1758	.0322	.0843	.0159								

Andari mengeliye

The second comment of the second comment of

IH19 822C7F5M4V7W111 TB ORBITER UPPER FUSELAGE

(QQEU04) (07 NOV 74)

REFERENCE DATA

PARAMETRIC DATA

SREF ≈	2690.0000	1 50.FT	XMRP	3	2000							H	ARAMETRIC	DATA		
LREF = BREF = SCALE =	1290.3000 1290.3000 0300.	IIN. IN.	YMRP	=	.0000 .0000 .0000			•			BETA BLTRIP MACH	12 13 24	.000 .030 19.800	RN/L =		.500 .175
ALPHA ()) = -10.	000 M	IACH (1) = 1	9.800 R	N/L =	.37900	₽ů	=	3992.5	70			, -		
SECTION	(1)80DY				DEPENDE	NT VARIA	ABLE Q-DOT		_	2596.0	TO	=	2959.6	HO	=	.51000-01
X/L	.1700	.3000	.4000	.4250		.6000	.7000	.8250		•				•		
Z(HL) 375.000 400.000	•	******	.0381		.2560	.0466	.0945				-					
425.000		.6381	.6235	.4241	******	.4335	.3643									
465.000 501.000	7.0570	.0102	.6278		.7506**			*****					•			
ALPHA (2) = -5.(000 M	ACH (I)	= 19	3.800 RN	I/L =	.38000	Po	, 34	4032.9	TO		2969.6	116		
SECTION	(1)BODY				DEPENDEN	T VARIA	BLE Q-DOT			.,	,0		2303.0	HO	373	.51000-01
X/L	1700	.3000	.4000	.4250	.5000	.6000	7000	.8250					-			* .
2(k <u>l)</u> 375.000 400.000		.4936	.0138	.3850	.3142	.0070	.0542									
425.000 465.000		.5852	.3591		***	.2657	.2549	•								
501.000	5.5419	-9102	.3210		.4008**	*****		*****					•			
ALPHA (3)		100 MA	CH (1)	= 15	.800 RN	/L =	.36000	PO	79	4013.8	TO		3039.6	но	±2	.51000-01
SECTION (1180DA				DEPENDEN	T VARIA	ELE Q-DOT			•					•	101000.01
X/L	1700	.3000	000ء'۔	.4250	.5000	.6000	.7000	8250	•						•	
Z(HL) 375.000 400.000	€ 8	*****	.0672	.3494	. 1922	.0223	.0761	·.	•							
425.000 465.000		4546	.2164		*****	.2268	.2104									
501.000	4.8530	.0928	1947		.1445***	*****		*****			•					•

DATE 03 NO	75	r	TABUL	NTED SOU	RCE DATA	A - LACR	N2-28 (II	Higi						PAGE	193
				IHI	9 82207	-5M4V7W11	1 TB OR	SITER UPI	PER FUSELAGE			(QQEUOS))		
ALPHA (4)	° = 5.0	00 M	ACH (1)	= 19	.800 F	RN/L =	.37900	PO	= 4020.5	TO	THE	2969.6	HO	at.	.51000-01
SECTION :	11800Y				DEPENDE	NT VARIA	BLE Q-DOI	Γ .				-			
X/L	.1700	.3000	4000	.4250	.5000	.6000	.7000	.8250	en en en en en en en en en en en en en e						
Z(HL) 375.006 400.000		.5317	.0272	.2721	.2246	*****	.0219				14	* · ·			•
425.000 465.000		.3480	.2879			.1851	.0937			,		. *			
501.000	2.4832	.0051	.2728		.2029	*****	.1089	*****					•		
ALPHA (5)	= 10.0	00 M	ACH (1)	= 19	. 203 F	N/L =	36900	PO	= 3967.9	ŢΟ		2989.6	но	. R	.51000-01
SECTION (1 JEODY				DEPENDE	NT VARIA	BLE Q-DOT								
X/L	.1700	.3000	.9000	.4250	.5000	.6000	.7000	.8250							
Z(WL) 375.000 400.000	**	****	.0126	.2378	.1333	.0117	.0071								
425.000 465.000		.2960	.2018		******	. 1677	. 1467	0.00							
501.000	1.1636	.0240	-1315		. 1570	.0027	.0743	.0173							
•											100				

DAIF OF MOA	15		IMBULM	ied addre	E DAIA	- LAUN	145-60 (11)	,								
				1H19	822C7F	5M4V7H1 [1 ORP	ITER UPP	ER F	USELAGE			COGEUC	5) (07	MOA	74)
	REFERE	NCE DATA	4									PA	RAMETRIC	DATA		
LREF = 129	0.0000 S 0.3000 I 0.3000 I .0000	N.	XMRP = YMRP = ZMRP =	.00 .00 .00	00						BETA : BLTRIP :		.000 .000	RN/L MACH		002. 009.21
ALPHA (1)	-10.00	O MAC	CH (1)	= 19.8	00 R	RN/L =	.38006	PO	=	4008.3	TO	14	2959.6	HC	100	.51000-01
SECTION (180DY			Ε	EPENDE	NT VARIA	BLE Q-DOT									
X/L	.1700	.3000	.4000	.4250	.5000	.6000	.7000	.8250								
Z(WL) 375.000 400.000		.0511***	864944	.4275	.2021	.0145	.0531									
425.000 465.000		.5819	.7818		****	.3993	.3137	.0213		-						
	6.7231***	*****	.8810		.8896	.0284	.6266							: ::::::::::::::::::::::::::::::::::::		
ALPHA (2)	-5. 00	10 MAI	CH (L)	= 19.8	300 A	NNL =	.38020	PO	*	4004.8	TO	#	2959.6	НО	*	.51000-01
SECTION (1)BODY				EPENDE	ENT VARIA	BLE Q-DOT	•					. 4			
X/L	.1700	.3000	.4000	.4250	.5000	.6000	.7000	.8250			•					
Z(KL) 575.000 400.000		-0185**	*****	.3365	.1771*		.0909	•							¥.7	
425.000 465.000		.5082	.4506		*****	.2882	. 1695	.0111							٠	
	6.5217***	*****	.4758		.5160	*****	.6001			-			ngs en indire Grand in de			
ALPHA (3)	. 01	AM OC	CH (1)	= 19.8	300 F	RN/L ≃	.35800	PO	14	3982.0	TO	2	3039.6	но	**	.50000-01
SECTION (1 180DY			•	DEPENDE	ENT VARIA	ABLE Q-NOT	•								
X/L	.1700	.3000	.4000	.4250	.5000	.6000	.7000	.8250								
Z(HL) 375.000		.1176**	ce ++ 4*		.1762	.0184	, 0547				·					
400.000 425.000		.4400	.3362	.2700	*****	. 1634	******							•		
465.000 501.00 0	4.8707**	4 = # = 5	.3082		.2761	.0377	.2694	.0249							•	

DATE 03 NOV	75	TABULATED	SOURCE DATA	- LACR	NS-58 (IH	19)		:				F	AGE 195
			TH19 BR237FS			ITER UPP	ER FUS	ELAGE			COCEND	53	
ALPHA (4)	= 5.000 MA	CH (1) =	19.800 RM	4/i, "#	.35400	PO	= 3	975.0	TO		3009.6	НО	# .51000-01
SECTION (1 1BODY		DEPENDEN	NT VARIA	BLE Q-DOT				٠				
X/L	.1700 .3000	.4000 .46	.5000 .5000	.6000	.7000	.8750					$e^{-\frac{1}{2}\int_{\Omega(x)} dx} e^{-\frac{1}{2}\int_{\Omega(x)} dx}$		
Z(HL) 375.000	.0178**	*4***	.2'189	.0060	.0215								
400.000 425.000	.4541	.2415 .2415	170	.1143	.1097	.0087					1.4	•	
465.000 501.000	3.7387*****	.2141	.1581**	4444AR,	.1001	• • • • • • • • • • • • • • • • • • • •							mtaannt
ALPHA (5)	* 10.000 MA	CH (1) *	19.800 R	N/L =	.38100	PO	= 4	011.8	TO	=	2959.6	Ho	m .51000-01
SECTION (1180DY		DEPENDE	NT YARIA	rere o-dol	•	•					Marie High	
X/L	.1700 .3000	.4000 .4	250 .5000	.6000	.7000	.8250	-						
Z(WL) 375.000	.0177**	*****		*****	.0756								
400.000 425.000	.4278	.2478	323	.2421	.2817	.0073							
465.000 501.000	2.3820******	.2268	.1146	.0093	.0726	,,,,,							

CRBITER UPPER FUSELAGE

T 07 NOV 74 1

REFERENCE DATA				PARAMETRIC DATA
LREF = 1290.3000 IN. YMRP	± .0000. ≃ 0000. ≈ 0000. ≈		BETA * BLTRIP =	.000 RN/L = .500 .000 MACH = 19.800
ALPHA (1) = -10.000 HACH (1	19.800 RN/L = .36500	PO = 4010.1	TO	# 3019.5 HO * .51000-01
SECTION (1)BODY	DEPENDENT VARIABLE Q-DOT	•		
X/L .1700 .3000 .4000	.4250 .5000 .6000 .7000	.8250		
Z (눼L) 375 . 000 , 453५****** 400 . 008	.2840****** .0417 .425			
425.000 .6354 .8932 465.000	******* .3686 .3157	.0040		
501.000 7.7327****** .9250	5993. ******E059.			
ALPHA (2) = -5.000 MACH (1	00436. = 17NR 008.61	PO × 3999.5	70	= 3019.6 HO = .51000-01
SECTION (1180DY	DEPENDENT VARIABLE Q-DOT			
X/L .1700 .3000 .4000	.4250 .5000 .6000 .7000	.8250		
Z(HL) 375.000 .2914******* 400.000 425.000 .5243 .5136 465.000 7.3755****** .5323	.1909 .0116 .0668 .3172 .2385 .2385 .5377******* .5994	****		
ALPHA (3) = .000 HACH ().	= 19.800 RN/L = .35600	PO = 3966.2	TO	= 3039.6 HO = .50000-01
SECTION (1)BODY	DEPENDENT VARIABLE Q-DOT			
X/L .1700 .3000 .4000	.4250 .5000 .6000 .7000	.8250		
Z(HL) 175.000 .004 .4271 400.007 .4425 .2565	.1991 .0047 .0586 .3056 ****** .2452 .1865			
465.000 501.000 4.6596 .4514 .2476	.3007 .0225 .2564	.0104	•	

REPRODUCIBILITY OF THE ORIGINAL PAGE IS POOK

DATE 03 NOV 75 TABULATED SOURCE DATA - LACR NZ-28 (1H19) PAGE 197 IH19 B22C7F5M4V7WI11 ORBITER UPPER FUSELAGE (0000006) ALPHA (4) = 5.000 MACH (1) = 19.800 RN/L - .39500 PO = 4018.8 TO 2909.6 .52000-01 SECTION (1)80DY DEPENDENT VARIABLE Q-DOT X/L .1700 .3000 .4000 .4250 .5000 .6000 .7000 .8250 Z(HL) 375.000 400.000 .1653****** .2268****** .0757 .2740 425.000 465.000 .4131 .2042 .1947 501.000 .0258 3.8187****** .2134 .2158****** .1442 ALPHA (5) = 10.000 MACH (1) = 19.800 RN/L .38000 PO 4006.5 2959.6 .51000-01 SECTION (1180DY DEPENDENT VARIABLE Q-DOT X/L .1700 .3000 .4000 .4250 .5000 .6000 .7000 .8250 Z (NL) 375.000 .5467****** .2899****** .0558 400.000 .3369 425.000 .4246 .2835 .2499 .2840 465.000 .0154 501.000 2.4279 .4402 . 1902 .1910****** .0916

1

er er er er er er

-600

.700

.800

.900

.3627 .3391

.2877

.2062

2005.

.6617

.4913

.1329

.1420

.1229

.......

THIS BEECFEMANTWILL TE ORBITER LOWER HING

(QQEH03) (07 NOV 74) REFERENCE DATA PARAMETRIC DATA SREF * 2690.0000 SQ.FT. .0000 BETA .000 RN/L .500 LREF = 1290.3000 IN. BREF = 1290.3000 IN. YMRP .0000 BLTRIP = .000 DELTAH = .175 ZMR⁽²⁾ .0000 MACH 19.800 SCALE = .0060 ALPHA (1) = -10.000MACH (1) = 19,620 RN/L - .36800 PO 4011.8 TO 3009.6 HO .51000-01 SECTION (1) HING DEPENDENT VARIABLE Q-DOT 2Y/B .4000 .6000 .8000 X/C .050 1.4075 .100 2.2690 1.3573 .7109 1.2538 .200 .6716 1.6485 .300 .3913 .2878 .2386 .400 .5279 1.0233 .500 .4351 .600 .2121 .3509 .6007 .700 .1877 .3370 .800 .1721 .2687 .4758 .900 ****** .147B ALPHA (2) = -5.000HACH (1) = 19.800 RN/L .38200 4022.3 2959.6 .51000-01 SECTION (1)HING DEPENDENT VARIABLE Q-DOT 2Y/8 .4000 .6000 .8000 X/C .050 .9013 .100 .8809 1.9352 .5535 .2763 1.3576 .200 1.7538 .300 .400 .500 .2095 .1783 .4586 1.1335

	- 72		TABULATED	SOURCE DA	STA – LA	CR N2-28	(1H19)							PAGE	199
DATE 03 NOV	75		TABULATED				ORBITER LO	WER H	IING			(QQEH03)			
ALPHA (3)	= _[000 MA	CH (1) =		RN/L	= .365 0			4066.2	70	=	3039.6	HO	*	.51000-01
SECTION (NDENT VA	RIABLE G-	·DOT								
		.6000	.8000												
54/9	.4000	.0000	.0000												
X/C .050 .100 .200 .300 .500 .500 .600 .900	1. 361 .9142 .5732 .4132 .3872 .3566 .3002 .2574 .2133	1.6777 1.1697 -8631 .7055 .6087 .5135 .4434 .3310	2.1579 1.3834 .9231 .6643												.51009-01
ALPHA (4)	* 5.	000 M/	ACH { 1} =	19.800	RN/L	362	90 00	#	4029.4	TO	íz.	3039.6	HO		*\$1000-01
SECTION (IDMING			DEPE	NDENT V	ARIABLE Q	-COT								
8175	.4008	.6000	.8000												
X/C .050 .100 .200 .300 .400 .500 .600 .700 .900	.7031 .5681 .3637 .2648 .292 .2061 .2065 .1812 .1653	1.3039 .9524 .6890 .5926 .4955 .4624 .4568 .3469 .1780	1.8640 1.2706 .8605 .6754										un		.51000-01
ALPHA (5)	= 16	.000 M	ACH (1) =	19.800	RN/L	36 9	100 PD	-	4027.6	TO		3009.5	HO	. =	.51000-01
SECTION (DHING			DEP	ENDENT V	ARIABLE C	T00-1								
SA\B	.4000	.6900	.8000												
X/C .050 .200 .300 .409 .500 .700	.1957 .2062 .1835 .1852 .1768 .1516 .1949 .1552	1.5418 1.1862 .9302 .7785 .6955 .6832	1.9197 1.4374 .9584 .7718												

Homelia francis de la la la la compania del compania del compania de la compania de la compania de la compania de la compania de la compania de la compania de la compania de la compania de la compania de la compania de la compania del compania de

DATE 03 NOV 75

TABULATED SOURCE DATA - LACR N2-28 (1H19)

THIS BESCOFFSHAVYWILL TO ORBITER LOHER WING (QUEHOS)

PAGE 200

ALPHA (5) = 10.000 MACH (1) = 19.800

SECTION (1) HING DEPENDENT VARIABLE Q-DOT

0008. 0000. 000H. 91YS

,500 ****** '5558

DATE D3 NOV 75 TABULATED SOURCE DATA - LACR N2-28 (1H19) PAGE 201 THIS BESCOFFSHAVOWITE TO ORBITER LOWER WING (QQEH04) (07 NOV 74) REFERENCE DATA PARAMETRIC DATA SREF . 2590.0000 SQ.FT. XMRP .0000 LREF 1290.3000 IN. 1290.3000 IN. BETA ouc. RN/L = DELTAH = YMRP .500 .0000 GREF BLTRIP = .030 ZMRP .0000 .175 SCALE -.0060 MACH 19 900 ALPHA (1) = -10.000 MACH (1) = 19.800 .37900 3992.5 TO ≈ 2959.8 HO .51000-01 SECTION (INHING DEPENDENT VARIABLE Q-DOT **8175** .4000 .6000 .8000 X/C .050 1.4096 1.0509 .6555 -100 1.7008 .200 1.1570 1.7253 .4313 .8087 .400 .3750 .2768 .6665 1.0541 .500 .5372 .2097 .2175 .1844 .600 .4071 .7243 .700 .4174 .800 . 3505 .4823 .800 ****** . 1837 ALPHA (2) = -5.000 MACH (1) = RN/L 4032.9 TO 2969.6 .51000-01 SECTION (LIWING DEPENDENT VARIABLE Q-DOT 2Y/8 .4000 .6000 .8000 X/C .050 .8577 . 100 .6978 1.5291

.200

.300

.400

.500 .600

.700

.800

.900

.4805

.3313

.2544

2564

1949

. 1823

. 1403

1.0140

.6757

.5252

4359

. 3930

.3593

.2348 .1598

1.8571

1.0495

.6986

DEPENDENT VARIABLE G-DOT

2Y/8 .4000 .6000 .8000 X/C .050 .8076 .100 .7159 1.6374 1.0761 .200 .4933 1.8146 .300 .3243 .7061 .400 .5852 1.1407 .500 .2491 .4601 .7081 .600 .2144 .4738 .700 .2087 .3364 .000 .1851 .2921 .5313 .900 ******* .1805

SECTION (1) WING

ALPHA (4) = 5.000 MACH (1) = 19.800 RN/L = .37900 PC = 4020.6 TO = 2959.6 HO = .51000-01

SECTION (!) HING DEPENDENT VARIABLE Q-DOT

2Y/B .4900 .6000 .0000 X/C .050 .5700 . 100 .4609 1.2781 .200 .300 .400 . 3344 .9215 1.6171 .2164 .5974 .2047 .5262 1.1277 .500 .600 .700 . 1847 . 1583 .4548 .3657 .7801 .1398 3225 .800 . 1441 .3524 .5518 . 1796 .900

ALPHA (5) = 10.000 HACH (1) = 19.800 RN/L = .36900 PO = 3967.9 TO = 2989.6 HO = .51000-01

SECTION (11HING

DEPENDENT YARIABLE Q-DOT

2Y/8 .4000 .6000 .8000 X/C .050 . 1956 1.3354 .100 .1433 .200 .300 .400 .1443 1.0220 1.6423 . 1525 . 1750 .8143 1.1535 .7336 . 1832 . 1504 .500 .6301 .8707 .5545 .700 . 1911 .5467 .800 .1568 .4481 .6215 DATE 03 HOV 75

TABULATED SOURCE DATA - LACE NO-28 (1H19)

PAGE 203

THIS BESCAFSMANAHILL TO ORBITER LOWER WING

COCEHGAI

ALPHA (5) * 18.000 MACH (1) = 19.800

.8000

SECTION (1)HING

DEPENDENT VARIABLE Q-DOT

81YS .4000 .6000

.900 ****** .2921

PAGE 200

19.800

.51000-01

ORBITER LOHER HING IHI9 822C7F5M4V7W111

1 07 NOV 74 3 (COENDS)

RN/L

HACH

PARAMETRIC DATA

.006

.000

2959.6

BETA

≈ 4008.3

BLTRIP =

REFERENCE DATA

.0000 SREF = 2690.0000 SQ.FT. LREF = 1290.3000 IN. XMRP .0000 YMRP ZMRP .0000

.1611

BREF - 1230.3000 IN.

SCALE = .0060

SECTION (I)WING

RN/L = .38000 19.900 MACH (1) = ALPHA (1) = -10.000 DEPENDENT VARIABLE Q-DOT

.3177

.6000 .8000 .4000 2Y/B

X/C .5186 .3425 .2728 .050 1.5930 .8580 .100 .9872 .200 .1708 .4835 .3675 .300 .5860 .400 . 1590 .500 .2136 .3637 .600 . 1461 .2201 .700 .1077

. i 267

.900 ****** .1095 .51000-01 = 2959.B HO TΩ 4004.8 RN/L = .38000 19.800 MACH (1) m ALPHA (2) # -5.000

SECTION (1)WING

.800

DEPENDENT VARIABLE Q-DOT

.8000 .6000 .4000 SAAB X/C .050 .6206 1.7531 .4670 .100 1.3255 .3793 .9459 .200 .6028 .300 .2667 .5105 .8764 .2639 .400 .2850 .3278 .2020 .500 .5409 .600

. 1772 3009 ,700 .3741 .1261 .2709 .800 . 1543 .900 *******



DATE 03	3 NOV 75		٦ ۾	ALULA	TED	SOURCE DA	ATA - LA	CR N	15-58 (IHI)	9)							PAGE	205
						1418 8550	7F5M4V7	74111	OR81	TER LON	ER N	ING			(GOEHOS)			
ALPHA ((3) =	.000	17ACH	(1)	35	19.800	RN/L	**	.35800	P0	15	3982.0	TO	献	3039.6	HO	us.	.50000-01
SECTIO	ON C IDMINO	;				DEPEN	IDENT VA	AR I AE	LE Q-DOT									
8178	.4000	.600	0 .80	000														
X/C .00. .01. .02. .02. .03. .03. .03. .00. .00.	00 1.1455 00 .704 00 .5146 00 .4616 00 .4226 00 .299	8 2.136 1.317 1.317 1.317 1.775 1.204 7.536 1.470 3.382	9 1.76 7 6 1.03 6 7 .70 7													-		
ALPHA ((박) = - 1	5.000	MACH	(1)	in	19.803	RN/L	2	.36400	PO	121	3975.0	TO	22	3009.6	но	Œ	.51000-01
SECTIO	MINCE) NO	3				DEPE	NDENT V	ARIA	BLE Q-DOT									
5A\B	.400	.600	18. 0	000														
X/C . 0! . 2! . 3! . 5! . 5! . 7! . 9!	00 1.583 00 1.244 00 .855 00 .711 00 .630 00 .596	2.050 1.535 3.065 9.925 0.399 5.658 + .590 3.460	6 2.09 19 17 14 .91 14 .91					•										
ALPHA	(5) = 1	0.000	MACH	(1)	=	19.800	RN/L	**	.38100	PO	=	9011.8	TO	R	2959.6	НО	3%	.51000-81
SECTION	ON (1)% *	3				DEPE	NDENT V	ARIA	BLE Q-DOT									
SA\B	.400	0 .600	B. OI	000														
.3 .4 .5 .6	00 3.555 00 2.309	1 2.806 8 2.257 4 1.771 9 1.587 3 .669 5 1.206 8 1.117	17 2.9 11 70 2.0 33 34 1.4	152 565													•	

<u>(</u>

DATE 03 NOV 75

TABULATED SOURCE DATA - LACR N2-28 (1H19) IH19 B22C7F5M4V7W111

ORBITER LOWER WING

(QQEWD5)

PAGE 206

MACH (1) = 19.800 ALPHA (5) = 10.000

SECTION (1)WING

DEPENDENT VARIABLE Q-DOT

2Y/8

.4000

0008. .6009

X/C .900 ******* .4841 DATE 03 NOV 75 TABULATED SOURCE DATA - LACR N2-28 (IHI9) PAGE 207 . IH19 822C7F5M4V7W111 ORBITER LOVER HING (QQEW06) C 07 NOV 74 2 REFERENCE DATA PARAMETRIC DATA SREF = 2690.0000 SQ.FT. .0000 BETA RN/L MACH .000 .500 LREF = 1290.3000 IN. YMRP .0000 BLTRIP = .000 BREF = 1280.3000 IN. 19.800 ZMRP .0000 SCALE = .0060 ALPHA (1) = -10.000 MACH (1) = 19.800 4010.1 3019.6 HO .S1000-01 SECTION (· I) WING DEPENDENT VARIABLE Q-DOT SA/B .4000 .6000 .8000 X/C .050 .3₀65 .2820 .100 1.4145 .200 .2115 .7537 .9322 .300 .4991 .2063 .400 .1623 .3811 .5705 .500 . 1293 .2015 .600 -1182 .2558 .3642 .1395 .700 .800 .1422 .3513 .900 .0855 ALPHA (2) = -5.000 MACH (1) = 19.800 3999.5 TO 3019.6 HO .51000-01 SECTION (I)WING DEPENDENT VARIABLE Q-DOT 81YS .4000 .6000 .8000 X/C .050 .5798 .4378 .3585 .2419 .100 1.7670 .200 .9788 1.3812 .300 .6288 .400 .2171 .5367 .8903 .500 .1680 . 3945 .600 .3435 .5642

.700 .800

.900 **

.2115

.1490

.3159

.2272

.0845

DATE 03 NOV 75 TABULATED SOURCE DATA - LACP N2-28 (1H19) ORBITER LOWER WING (GOEHOS) 1H19 B22C7F5M4V7W111 HO .50000-01 ALPHA (3) = .000 MACH [1] = 3966.2 3039.6 19.800 RN/L 5 .35600 SECTION (I) WING DEPENDENT VARIABLE Q-DOT **31/8** .4000 .6000 .8000 X/C .850 1.1283 .100 .9814 1.9593 1.2159 .200 .6941 1.6616 .400 .4700 .8549 .6955 .6362 .4035 .9965 .500 .3575 .600 .3055 .5521 .6790 .700 .2607 .4177 .800 .2368 .4918 .3699 .900 .2069 2909.6 HO .52000-01 ALPHA (1:3 * 5.000 MACH (1) = 4018.9 TO RN/L PO 19.800 SECTION (1) HING DEPENDENT VARIABLE Q-DOT SA/B .4000 .8000 .8000 X/C . 056 2.2744 1.8741 .100 2.0158 .eoo 1.2641 1.4782 2.0617 .400 .8861 1.0869 .7103 .8992 1.4317 .500 6582 .6886 .5866 .600 .6785 .9826 .700 .5692 .5843 .800 .5162 .4720 .7193 .900 .3032 .51000-01 ALPHA (5) = 10.000MACH (1) = 4006.5 2959.6 19.800 RN/L .38000 SECTION (INHING DEPENDENT VARIABLE Q-DOT SAVB .4000 .6000 .6000 X/C .050 3.8505 3.2856 .100 2.7217 .200 2.2713 2.2078 2.8347 1.7035 .300 1.6693 .400 1.4737 1.5082 1.9034 .500 1.3875 1.1364 1.1294 .500 1.1935 1.4200 .700 1.1113 1.0483

.8248

.9734

.800

DATE 03 NOV 75

TABULATED SOURCE DATA - LACE N2-28 (1H:9)

PAGE 209

(QQEWOS)

1H19 B22C7F5M4V7W111 ALPHA (5) = 10.000

MACH (1) = 19.800

DEPENDENT VARIABLE Q-DOT

ORBITER LOWER WING

SECTION (LIWING

8YYB .4000 .8000 .6000

.900 ****** .4951

0†1

.750

.800

.850

.900

.935

.0570

.0523

.500

.175

.51000-01

IH19 B22C7F5M4V7WIII TB EXTERNAL TANK

(QQETQ1) (07 NOV 74)

PARAMETRIC DATA REFERENCE DATA .000 BETA XMRP .0000 SREF 2690.0000 SQ.FT. DELTAH # BLTRIP # .030 YMRP .0000 1290.3000 IN. LREF 12 MACH 19.800 1290.3000 IN. ZMRP .0000 BREF # SCALE = .0060 2959.6 TO 4029.4 .38500 PO 19.800 RN/L MACH (1) =ALPHA (1) = -10.000DEPENDENT VARIABLE Q-DOT SECTION (1) TANK .0009 45.0000 67.5000 90.0000112.5000135.0000157.5030180.0000 PHI X/L 20.3832 20.3832 .000 16.3303 .005 14.5578 .010 10.0186 .020 8.5378 .040 6.6017 .050080 3.8287 . 100 .0076 .125 1.9000 . 150 1.5282 .175 1.2099 .6258 .200250 .7406 .0028 .4741 .300 .2416 .5630 .325 .350 .375 .5073 .5926 2.5193 .4516 1.8033 .4050 .4017 4.5826 .2161 .3394 .1520 .400 .0840 2.9558 .425 2.4840 1.9823 .9445 .450 **** .475 1,4657 1.9091 .1507 .2209 .5055 1.3437 .500 1.3794 .525 1.3214 1.2819 1.2400 .550 .575 1,1941 .9174 1.0531 .0796 .2734 .5870 1.0076 .2146 .600 1.0429 .625 .77770000000 .9391 .1585 .650 .8167 .675

.5971

5442

.3322

.2694

.0981

.7518

.5398

.2964

. 1545

.0780

.0081

.6692

.5171

.4863

.3647

.2493

.4917

.4708

.3155

0185.

.2549

.2302

.1595

.1648

. 1481

.1391

PAGE 211 TABULATED SOURCE DATA - LACR N2-28 (1H19) **DATE 03 NOV 75** (QQETO1) IHIS BEECFEM4V7W111 TO EXTERNAL TANK .51000-01 HO 2929.6 = 4031.1 MACH (1) = 19.800 RN/L = .39100 ALPHA (2) = DEPENDENT VARIABLE Q-DOT SECTION (1) TANK .0000 45.0000 67.5000 90.0000112.5000135.0000157.5000180.0000 PHI X/L 18.4728 .000 18.4728 13.8855 .005 11.7747 .010 .020 6.5570 .040 4.8680 .080 2.6974 .100 .0216 . 125 1.3354 .150 .175 .200 .250 .300 .325 1.0947 .8190 .6152 .4765 .0527 .3650 .2953 .3315 .3496 .3313 .4091 1.8503 .375 3.1257 .2895 1.2162 .2725 .2914 .2392 .2036 .2101 2.2533 .425 .450 .475 1.8570 1.5118 .5580 1.4389 1.0668 .8833 .1970 .3617 .1575 .500 1.0020 .525 .550 .575 .9187 .7769 .9975 .8799 .6882 .6958 .4194 .8456 .2546 .600 .625 .1783 .0895 .6089 .5171 .6201 .0179 .2016 .4281 .675 .700 .3979 .2783 .3396 .2031 .2739 .4051 .4703 .1543 .4063 . 1588 .750 .3166 .1628 .0747 .3418 . 1503 .1642 .2147 .800 .850 .0652 .1793 .0372 .0706 .0512 .2315 .1946 .1502 .300

.0341

.0251

.935 .974

IH19 B22C7F5M4V7W111 TB EXTERNAL TANK

(QOETOI)

ALPHA (3) = .000 MACH (1) = 19.800 RN/L = .39100 PO = 3978.5 TO = 2909.6 HO = .51000-01

SECTION (1) TANK

DEPENDENT VARIABLE Q-DOT

PHI .	.0000	45.0000	67.5000	90.00001	12.500013	5.00001	57.50001	80.0000
X/L .000 .005 .010 .020 .040 .060 .080				18.3166		-		18.3166 12.2521 9.8263 6.3422 5.3556 4.0053
. 125 . 150 . 175 . 200 . 250				.5929				.0176 .9739 .7799 .5765
.300			.3045	.0133	.3046	asea	•	.3123
.325 .350 .376 .400 .425	.2746	.2497	.2387	.2641	.2228	.2556 .2347 .1959 .1660	.765B	.2783 1.3409 1.4868 1.4868
.475						•	•	****
.500 .525 .550			. 1897	.1581	. 1965	.5788 .6336	.9555 .6427	.6908 .6108 .4782
.575 .600 .625	.2193		.1411	. 1279	.3045	.5525	.3541	.3770 .3295 .2173
.650 .675			.0952			.3566	.0177	.1347 .1115
.700 .750 .800	. 1515	.1178	.0876 .1413 .1730	.1359	.2939 .1835	.2876 .1942 .1175	. 1228 . 0289 . 0280	.0351
.650 .900 .935 .974			. 1870	.0864	. 1231	.0826 • 4450	.0244*	

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TABULATED SOURCE DATA - LACR N2-28 (1H19)

IH19 B22C7F5H4V7WIII TB EXTERNAL TANK

(QQET01)

ALPRA (4) = 5.000 MACH (1) = 19.800 RN/L = .39500 PO = 4917.1 TO = 2909.6 HO = .52000-01

SECTION (1) TANK DEPENDENT VARIABLE Q-DOT

PHI .0000 45.0000 67.5000 90.0000112.5000135.0000157.5000180.0000

X/L .009 .005 .010 .020 .040 .060			!	16.8944				16.6944 10.7860 8.3952 5.2595 4.3676 3.2240
.100 .125 .150 .175							a	1.6398 6971 5446
.203 .250				.5642				4804,
.300 325			.3212	.0248	.2705	.2252		.2322
.350 .375 .400 .425 .450	.4038	.3430	.3106	.2669	.2058	.1984 1385 .1385	.5844	.2470 1.0945 1.2329 .7776 .5947
.475 .500 .525 .550			.2703	. 1735	.1010	.3889	.5943	.3200 .3046 .2134
.575 .600 .625 .650	.3930		.2714 .2491	.1410	.2107	.3505 .2473**	.1530	.1209 .0889 .0352 .0146
.675 .700 .750 .800 .850 .900	.3687	. 2670	.1948 .1987 .2037	. 1621 . 1535 . 1443	.2168 .1639 .u/55	. 1483 . 0860* . 1062 . 0540* . 0814	.0270	.0194 .0019 .0020 .0165
974								. 0255

REPRODUCIBILITY OF THE ORIGINAL PAGE IS POOR

THIS BESCRESMANTHILL TE EXTERNAL TANK

(QDETD2) (07 NOV 74)

REFERENCE	DATA							PARAMETRIC	DATA	
SREF = 2690.0000 SQ.F1 LREF = 1290.3000 IN. BREF = 1290.3000 IN. SCALE = .0060	. XMRP = YMRP = ZMRP =	.0000 .0000 .0000					BETA # BLTRIP = MACH =	.000 .000 19.800	RN/L = DELTAH =	.500 .175
ALPHA (1) = -10.000	MACH (1) m	19.800 F	N/L •	36500	PQ	= 3999.5	TO	= 2939.6	НО	51000-01
SECTION (1) TANK		DEPENDE	NT VAR	TABLE Q-DOT						

SECTION	ŧ	DITANK				DEPENDE	NT VARIA	BLE 0-DO	T.
PHI		.0000	45.0000	57.5000	90.00001	12.50001	35.00061	57.50001	80.0000
PHI X/L .005 .005 .005 .005 .005 .000 .000 .00		. 1698	.1707	.2704 .2494 .1973	.6722 .0158 .3755	`1 9 96	.5737 .1152 .3947 .9672 1.4063 1.3079		80.0000 80.26947 18.2707 18.32358 9.4605 9.4605 9.4605 4.0316 9.3235 4.0316 1.3235 8.691256 9.4418 1.3235
.650 .675				.1330			.7656	.7082	1.0077
.700 .750 .800 .850		.0926	.0782		.2501	.4916	.6504 .5412 .4884 .3766	.6047 .5440 .2911 .2326	.7763 .5593 .3330 .2045
.935 .974				. 1424	.2530	.3566	.2672	.1045	.0781 .0350 .0173

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DATE 03 NOV 75

TABULATED SOURCE DATA - LACR N2-28 (1H19)

THIS BESC7F5HOV7WILL TO EXTERNAL TANK

(DOETOS)

HO .51900-01 a 2919.6 -5.000 19.800 = .39000 PO 3994.3 70 ALPHA (2) m MACH (1) = RN/L

1.1224

DEPENDENT VARIABLE Q-DOT SECTION (1) TANK

PHI .0000 45.0000 67.5000 90.0000112.5000135.0000157.5000180.0000 X/L 19.7839 .000 19.7839 14.5968 .005 12.1907 .010 8.2418 .020 6.8851 .040 .050 5.0740 ****** .080 2.9079 .100 . 125 .0063 1.3866 .150 1.0745 .175 .200 .250 .300 .6180 .8424260t .0060 .3639 .4933 .325 .3659 .3622 .350 .375 .1448 1.7943 .3011 . 1594 .2078 . 3414 1.0842 3.2982 .400 .2049 .2400 2.3298 .425 .450 .5127 1.7889 1.3733 .475 . 1594 .2032 .8515 1.4490 1.1913

.500 .550 .575 .8988 1.1313 .9032 .2344 . 1449 .4157 .600 .0919 .7880 .6772 .7486 .625 .6217 .6761 .5141 .5349 .1971 .650 .4874 .675 .3557 .3575 .700 .2018 .2687 .4174 .5147 .2669 .2005 .750 .2047 .3608

.3617

.3239 .800 .0921 .1232 .1732 .2173 .3821 . 1250 .0694 .0528 .0318 850 .1274 .1818 .2546 .1221 .0181 .0001 .900 .935 .0424 ****** .974

DATE 03 NOV	75		TABULAT	CED SOUR	E DATA	- LACR N	15-59 (1)	(19)						PAUL	EID
				1819	822C7F5	11 1 141 V	TE EXT	TERNAL TA	NK			(SOTEDD)			
_	_						.39300	PO		3995.0	TO	2909.6	HO	-	.51000-01
ALPHA (3)	B. e	DO MAI	H (1)												
SECTION (BLE Q-DO								
PHI	.0000 4	5.0000 6	7.5000 9	0.000011	2.500013	5.000013	57.500011	30.000							
X/L .000 .005 .010 .020 .020 .020 .020 .125 .175 .200 .250 .350 .375 .400 .425 .450 .475 .525	.2708	.2489		.6105	.2902 ••• .2257	.2842	.8316 1.2969	19.5252 13.2730 10.6260 5.7910 4.4254 2.2858 1.0612 .6346 .2943 1.4277 2.28952 1.4277 2.28952 1.68574 .68514 .58574							
.975 .600 .625	. 1929		. 1957	.2130	.3303	.6489 .4342	.4360 .4138	.4265 .3815 .3907 .2168							
.650 .675 .700 .750 900 .850	. 1504	.1185	1824 . 1519 . 1897	.2246 .1765	.337. .2521	.3283 .2914 .1645 .0897	. 1518 . 0523 . 0269 . 0194	.0104 .0810 .0338 .0101		÷					
.900 .935 .974			. 1018	.1700	+E 1 40	.0376		.0380							

.850

.900

.935 .974

PAGE 217 TABULATED SOURCE DATA - LACE N2-23 (1H19) (S07300) DATE 03 NOV 75 THIS BESCTFSM4V7WILL TB EXTERNAL TANK .51000-61 CH) 2919.6 **4001.3** 20 - .39000 19.800 RN/L MACH (1) = 5.000 ALPHA (41 = DEPENDENT VARIABLE Q-DOT SECTION 1 1) TANK .0000 45.0000 67.5000 50.0000112.5000135.0000157.5000180.0000 PH1 14.8944 X/L 14.8944 9.8913 .000 7.9398 .005 4.9520 .010 4.1123 .020 3.1416 .040 1.4867 .080 .0045 .100 .6774 . 125 .4769 . 150 .3602 .175 .9039200 .250 .300 .325 .350 .2055 .2659 .3649***** .2123 .26199765 1.1236 . 1571 .5640 .2367 .2382 .3052 .6783 .4057 .3724 .400 .4264 .6958 .2192 425 0د ب .3451 .5389 .3461 .475 .1686 .2447 .2732 .2861 .500 .2044 .3184 .525 .3069 .1532 .550 .575 .0721 . 1353 .4594 .1247 . 31: 35 . 1293 .0006 .3705 .600 .0222 .2245 .625 .2390 .650 . 1397 .675 .1585 .2105 .1118 .1091 . 1256 1004 .750 .1016 .0234***** . 1246 .2753 . 1440 .3245

.0914 .0927

.0123

.0080

.1014

. 1403

(COTTOD)

1H19 822C7F5M4V7H111 TB EXTERNAL TANK

				*****			. 10									
ALPHA (5)	- 18.00	O HAC	H (1)	= 19	800 RN	/L =	.36700	PO	•	3999.5	ŢO	•	3009.5	140	R	-51000-01
SECTION (LITANK				DEPENDEN	T VARIA	BLE Q-DOT	r								
PH1	.0000 45	.0000 67	.5000 9	10000.00	12.500013	5.000015	57.500018	0000.08								
X/L .005 .010 .020 .040 .050 .100 .155 .150 .150 .305 .305			.5048	.6393 .0010	.3105	. 1832	••	7.9993 10.7055 7.2818 4.3818 3.6185 2.6281 1.1801 .4748 .3911 .3012								
.375 .400 .425 .450 .475 520 .525	.8365 .7659	.7142	.4689 .4339	.2969	. 1894 . 1789	.1653 .1553 .1553 .1212 .2108 .1660	.2770 .3309 .2086 .1207	. 1473 . 5891 . 5549 . 3510 . 2176 . 0751 . 1361 . 0466 . 0466 . 0028								
.600 .625 .650 .675 .700 .750 .800 .850 .935	.6858	.5186	.3855 .3741 .3929 .3783 .3453	.2508 .2548 .1833	.1189	.0530 .0394 .0677 .0403 .0513	.0380 .0380 .0240	2900. EESO. E200.								



DATE 03 N	OV 75		TABU	LATED SO	OURCE DATA	A - LACR	N2-28 (1	(6 1H							P	46E 219
				18	119 TB		EX	RTERNAL	TANK				(QUET(1512 St. 4
	REF	ERENCE DA	ATA											-	01.	40¥ 74 1
SREF = 2	2690 . 000:											PA	RAMETRIC	DATA		
LREF ⇒	1290 . 300: 1290 . 300: 1290 . 300:	0 IN. 0 IN.	XMRP YMRP ZMRP		.0000 .0000 .0000						BETA 9 BLIRIP =		.000 .000	RN/L MACH	e :	.500 19.600
ALPHA (1) = -10.	M 000.	TACH E	1) = 1	9.800 F	?N/L =	.38900	PO		7000 0						
SECTION	1)TANK		•	•				•		3990.8	to	4	2919.6	Ю		.51000-91
							ABLE Q-DO									
PHI	.0000	45.0000	67.5000	90.0000	112.50001	35.0000	157.50001	80.0000								
X/L																
.000				15.2219				15.2219								
.005 .010								.9503								
.020							•	11.5861								
.040								8.0082								
.060								6.8046								
.063								5.2851								
.100								4.1835								
. 125								3.2417								
. 150								1.8161								
. 175 .200							•	1.4581			•					
.250				.5623				1.1060								
.300			201.74	******				*****			•					
.325			.5945*			FREE	91									
.350						.5258 .2037										
.375					۰			.6451								
.400	.0895	.1406	.0918	.24.79	.4430	5250	.5808	.6333 .6475						•		
.425						. 51. 50	. 2000	6258								
.450 .475						.4978	.6096	0344								
.500			2002				- 4	*****								
.525			.2097	. 1961*	******	.2589	.5584 • •									
.550						70.4		.5995								
.575						. 3941	.3229	1655								
.600	.0538		.1586*		.3812	6073		5053								
.625				_	. 5015	.4032	.4552	.4053 .4772								
.650			. 1425			.50344		4990		•						
.675 .700				_			0.9	*****					•			
.750			. 1445	.2330	.3360			.6096			•			٠.		
.800	.0675	.0866	.1352			.4530	.6635	6597								
.850	.4073	• 0000	. 1424	. 1873	. 3853	.4796	.5093	.7452	-							
.900			. 1415	.8591	7000	.5013	.6950	7395								
.935			• • • • •	•===1	. 3659	.4598	.6723	7103			•					
.974								.5204 .0929								

.6096 .6597 .7452 .7395 .7103 .5204 .0929

				1H19	TB		EX	TERNAL T	ANK				(QQETO7) ,		4.5	
ALPHA (2)	-5.00 0	МАСН	(1)	= 19.	80 0 R	N/L =	.37900	PO	**	3997.8	TO	10	2959.5	Ю	*	.51000 <u>~</u> 01	I
SECTION (1)TANK				DEPENDE	NT VARIA	ABLE Q-DO)T		•							
PHI	.000D 45.00	000 67.50	000 90	.000011	2.50001	35.0000	157.50001	80.0000									
X/L								13.7179							.•		
.000 .005			12	5.7179				B.7784									
.010 .020								9.4418 6.4730									
.040 .060		•						5.4593 4.1538			•						
.109 .080								3.2165 2.4097									
. 125 . 150 . 175								1.6281 1.2536									
. 175 . 200 . 250				.4914			_	.9920									
.300		.21	485	.1287**	460489	ga.a		****									
.325 .350 .375					_	.364 0 1014.		.3830								•	
.400	.50½2aeaaa		926	.2173	.2255	.1381	.3461	.4803									
.425 .450						.2127		.3217			•						
.475 .500		.1	732	.0626**	*****	.1413	. 1269	*****									
.525 .550						.1281	. 1364	.1925							٠.		
.550 .575 .600	.0535	.1	[2] • • •	****	.2582	.3301	.2869	.2225 .3458									
.625 .650		.13	338			.2497	*****	.3531 33266			•					•	
.675 .700		.1	102	.1549	.2163	.2384	*******	888S. 888S.									
.750 .800	.0644 .0	614 .18	160 298	.1809	.2154	.2212 25723.	.2485	.2982 .2749			•					:	
.850 .900		. 18	290	. 1951	.2053	.2717 .2067	.2655 .2695	.2874 .1990			,			•			
.935 .574								.0001									†



				IHI	9 TB		EXT	ERNAL T	ANK			(QQETO7	· ·		
LPHA (3) •		000 (MACH (1	1 = 19	.900 R	N/L =	.39500	PO	· . 🙀	4015.3	то	2909.6	HO	. 24	.52000-0
SECTION ()	TANK				DEPENDE	NT VARIA	BLE Q-DOT	•							
ні	.0000	45.0000	67.5000	90.00001	12.50001	35.00001	57.500018	0.0000			•			_	
X/L															
.000				14.7082			1	4.7082			*				
.005								3.4074		•					
.010 .020		*						8.5955							±*
.040								5.6564 4.7629							
.080								3.6766							
.080								2.8532							
. 100								2.0549							
. 125						•		1.2348							
. 150 . 175								.9464							
.200				.4239				.6924							
.250				.4555				.556				-			
.300			.2294	.1483*				44446							
.325			.	1 5 .00		.2450									
.350						.1987		.2115							
. 375					•			.2572							
.400	. 1911	.2144	.5518	.2366	.2115	.0411	.2289	.2129							
.425 .450						.2052	.2013	.1264							
.475						. 2002		.0579							
.500			.1832	16014	*****	. 1642	.1716**								
.525								.1538							
.550						.1567	.1348	.0372							
.575								.1721							
.600	. 1425		.1475*	******	.1220	.1808	.1719	.1226							
.625 .650						1001.		.1637							
.675			.1132			. 1084.	******	.1409							
.700			.0765	.1198	.1368	1161*	******	.1537							
.750			1492	******	******	.1415	. 1693	.0987							-
.800	. 1263	.1768	.1215	. 1396	. 1485	.1548	. 1515	.1369							
.850						.1367	. 1259	.1355						•	
.900			.1050	.1630	.1280	.1319	. 1096	.1507		_					
.935								.0143							

.625 .650 .675

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.5:000-01

TABULATED SOURCE DATA - LACE N2-28 (1H19) **DATE 03 NOV 75** (QQETO7) EXTERNAL TANK THIS TO HO 2909.6 4010.1 PO .39400 19.800 RN/L = MACH (1) = 5.000 ALPHA (4) * DEPENDENT VARIABLE Q-DOT SECTION (1) TANK .0000 45.0000 67.5000 90.0000112.5000135.0000157.5000180.0000 PHI 16.5684 X/L 16.3584 7.6394 .000 8,1759 .005 .010 5.0211 4.2236 .020 3.1028 .040 2,3313 .060 .080 .100 .125 1.6908 . 150 3996 .175 .200 .300 .325 .350 .375 .400 .425 .475 .5358 .1335***** .3751 . 1878 . 1975 .1607 1625 .1288 .2067 .1729 .2378 .2848 .3879 .3180 . 1697 .2030** .91221653 .2213 .2311** .2853 .500 .525 .550 .575 .600 .1317 .1268 .0159 . 1454 .1076 .1249 .0885 .1929 .3666****** .1162 .1839 .0949

.1102******

.0793

.1564 .0994

.0986

.11314

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0947

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.2185

.1921

. 1865

.1093

4 + + + .0998

.1213

.0737

.0877 .0674 .0856 .0667

PAGE 223

DATE 03 NOV 75 TABULATED SOURCE DATA - LACR N2-28 ([H19)

IH19 T8 EXTERNAL TANK

(GOETO7)

ALPHA (5) = 10.000 MACH (1) = 19.900 RN/L = .37900 PO = 3994.3 TO = 2959.6 HO = .51000-0

SECTION (1) TANK DEPENDENT VARIABLE Q-DQT

PHI	.0000 4	5.0000 6	7.5000 9	0.000011	2.500013	5.000015	7.500018	0.0000
X/L .000 .005 .010 .020 .040 .060 .100 .125 .150			1	5.6833			-	5.6933 1.8107 7.0356 3.2869 2.3652 1.7743 1.1936 .6481 .5136
.200 .250				.5136				.2598
.300			.3716	.1242**	*****	t 700	4 0	*****
.325 .350 .375					**	.1357	••	. 1426
.400 .425	.4498	.3613	.2374	.0909	.2189	.1168	. 1741	. 1592 . 0724
.450 .475	•					.1420	.1183	.0139 .0441
.500 .525			.3274	.2587*	*****	.1489	.0579**	.0702
.550 .575						.0948	.0813**	.0591
.600 .625	.5549		.3355++	******	.1124	.0943	.0731	.0742 .0659
.650 .675			.2745			.1115**	4.	.0455
.700 .750			.2935 .3093	.1908	.1339	.0722**	.0556	.076 7 .0785
.800 .850	.4886	.3659	.3009	. 1673	.1419	.0695 .0967	.0351 .0708	.0838 .0478
.900 .935 .974			.2795	.1680	.1070	.0410	.0251	.0937 .0564 .0191

DATE 03 NOV 75 TABULATED SOURCE DATA - LACE NZ-28 (1H19) PAGE 224 (QOETOR) (07 NOV 74) 1H19 T8 EXTERNAL TANK REFERENCE DATA PARAMETRIC DATA SREF = 2690.0000 SO.FT. LREF = 1690.3000 IN. BREF = 1690.3000 IN. XMXP .0000 HETA .000 RN/L .500 YMRP ZMRP .0000 BLIRIP . .030 MACH 19.800 SCALE -.0060

3009.6

.51000-01

SECTION (1) TANK DEPENDENT VARIABLE Q-DOT

19.800

MACH (I) =

ALPHA (1) = -10.000

PHI	.0000 4	5.0000	67.5000 9	10000-0	12.500013	35.000015	57.50001	80.0000
X/L .000 .005 .010 .020 .040 .060 .060		t5.0862						
.150 .175 .200 .250 .300 .325 .350			.2611**	.5811	-1.1732	.5406 .0397 .3565		1.7716 1.6221 1.4804 1.1639 1985 7254
.400 .425 .450	.1170	. 1845	. 1934	.3266	.4988	. 4538	.6256 .5045	.6145 .4302 .0543
.475 .500 .525 .550			.1465	.2314	3963	.5217 .4886	.6977 .5199	6293 6934 .1472
.575 .600 .525 .650	.0917		. 1514** . 1655	9 4 4 4 4 4	.1775	.4619 .2598••	.6029	.6658 .6511 .6548 .5773
.675 .700 .750 .800 .850 .900 .935	.0704	.0862	.1578 .2021 .1728 .1649	.2424 .2397 .2761	.4081 .3228 .3146	.4121** .5351 .6149 .6147 .5401	.4424 .4118 .5405 .5401	.4165 .4812 .5278 .5202 .5395 .6335 .0220

.51000-01

			IHI9 T9					EXTERNAL TANK				(007300)				
								_			-A	_	2919.6	Ю		.510
ALPHA (2)	-5.0	00 MA	ACH (E)	o 19	.800 R	N/L =	.39200	PO	*	4013.6 ·	TO	73	4313. 6	(A)	-	
SECTION (MATG				DEPENDE	NT YARIA	Bre 0-DO	T								
PHI	.0000 4	5.0000 E	57.5000 9	10.00001	12.50001	35.00001	57 .50001	0000.08								
X/L																
.000		15.8950.						15.8960 3.0978								
200. 010.						•		10.6213			•					
.050						•		7.2675				•				
.040								6.1766								
.060								4.6993								
.080								3.6569								
. 100								2.7523								
. 125								1.4281 5818.1								
.150								1.1475								
. 175				.5799				.8648								
.200 .250				.5133				1985								
.300			2595	*****	-1.1732			4962								
.325					• • •	.4127										
. 350						.0397		.4327								
. 375						.2622	75.75	.4628								
.400	. 1976	. 1641	. 1574	.3144	. 3419	. 3802	. 3525	.4278 .4831								
.425						.3215	. 3793	.0633								
.450 .475						و د باد .		******								-
.500			. 1900	.2279	2996	. 3479	.3707	3379								
.525				,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,				3452								
.550						.3048	.2973	.0739								
.575								3558								
.600	. 1041		.1957•	•••••	.0751	. 1367	. 3743	.3735								
.625						7770		. 1620 SSEE.								
.650			. 1460			. 3780		.3355								
.675 .700			. 1905	.2511	.2545	. 3205		4702								
.750			. 1235		, , , , ,	.3031	. 3906	. 4117								
.800	.0638	. 1288	. 1691	. 1865	.2507	. 3005	.3206	.3757								
.650						.3171	. 3562	. 3939								
.900			. : 333	.2323	.2778	. 2651	.3310	. 3425								
.935								.2529						•		
.974								0001								

DATE 03 NOV 75 TABULATED SOURCE DATA - LACE NE-28 (1H19) PAGE 226 THIS TO EXTERNAL TANK (COETOB) ALPHA (3) . .000 MACH (1) = 19.800 RN/L - .40000 to 2909.6 Ю .52000-01 SECTION / 1118/40 DEPENDENT VARIABLE O-DOT PHI .0000 45.8000 67.5000 90.0000112.5000135.0000157.5000180.0000 X/L cua. 14.0552 14.8552 .005 .6078 .010 9.6741 .020 5.6633 .040 6.7327 .060 3.6006 .080 2.7875 . 100 2.0275 . 125 .9371 . 150 8596 .175 .6836 .200 .5029 .5483 .250300 .3156 ****** -.0921 -.3848 .325 .350 .2871 .1943375 .2372 .2628 .400 .425 .1195 .2743 .2674 . 3425 . 1935 .2247 .2238 .2116 .450 .2999 .2149 .0293 475500 .0225 .1015 -.2978 .2:14 . 1875 -.1523 .525 .550 .575 .1784 .2088 .1419 .0334 .1789 .600 . 1852 .1771 ******* .1711 . 1269 .1682 .1581 .625 .650 .1943 .1545 . 1262****** . 1809 .675 .700 .750 **2204** . 1548 .1181 .1225 . 1682

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PAGE 227 TABULATED SOURCE DATA - LACE N2-28 (1H19) DATE 03 NOV 75 (QQETOB) EXTERNAL TANK . IH19 T8 a .51000-01 = 2919.6 **3989.0** PO MACH (1) = 19.800 RH/L = .38900 5.000 ALPHA (4) * DEPENDENT VARIABLE Q-DOT SECTION (LITANK .0000 45.0000 67.5000 90.0000112.5000135.0000157.5000180.0000 PHI X/L 15.1298 15.1298 .000 1.4713 .005 7.7819 .010 4.8704 .020 4.0593 .040 \rightarrow 2.9908 .060 2.1794 .080 1.5822 .100 .7442 .125 .6198 . 150 .4915 .175 .5177 . 3423 .200 -.0712 .250 -.1373 .3012 ****** -1.1732 .300 . 1851 . 325 .1274 -.2290 . 350 . 1229 .0988 . 375 .0941 .0976 . 1642 .2628 . 1455 . 3588 .0579 .0392 .400 .1487 .425 . 1323 .0734 -.0087 .450475 .0991 -.1303 .1397 .2368 -.1572 .500 .2713 .0595 .585 . 1351 .1014 .0330 .500

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DATE 03 NOV 75 TABULATED SOURCE DATA - LACK N2-28 (1H19) IHI9 TB EXTERNAL TANK (QQETOB) 10.000 MACH (1) = 19.800 RN/L - .36200 **3946.9** TO = 3009.6 HO SECTION (1) TANK DEPENDENT VARIABLE Q-DOT PHI .0900 45.0000 67.5000 90.0000112.5000135.0000157.5000180.0000 X/L . 000 15.5936 15.5936 .005 2579 910 7.2951 .020 4.1219 .040 3.3419 .060 2.4833 .080 1.7711 .100 1.1973 .165 5382 . 150 .4740 .175 . 3575 200 250 300 .5358 .2139 -.9013 .4199 .0540 -1.3142 -.1759 . 325 . 1581 . 350 . 1666 .1077 . 375 .1189 . 1054 .400 .5035 .4885 .4353 .3089 .1489 , 1411 .1021 .0951 .425 .0903 .450 .1018 .1272 . 0538 . 475 .2394 .500 .3470 .2420 -.1619 .0931 . 0329 -.C267 .525 .550 .0445 .0998 . 0694 -.0121 .575 .0571 .600 .4420 .3168****** .1224 .0818 .0716 .0633 625 650 .0408 .3952 .0553****** .0483 675

.700

.750

ccs.

850

.900

.935

974

.5975

.3849

.3359

.2723

.2626

. 3094

. 1666

.2356

. 1686

.1239

.1129

.0661

.0727**

.0778

.0961

.0859

.0395

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.0593

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.0154

.0329

.0067

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医环点类等性 经工作证券 经收款